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THE ZOOLOGIST:

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OF

NATURAL HISTORY,

AND

JOURNAL FOR RECORDING FACTS AND ANECDOTES

RELATING TO

QUADRUPEDS, BIRDS, REPTILES, FISHES, MOLLUSKS,
INSECTS, WORMS, ZOOPHYTES, &c.

THEIR HABITS, FOOD, RETREATS, OCCASIONAL APPEARANCE,
MIGRATIONS, NESTS AND YOUNG.

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Life-History of Saturnia Mylitta, the Tusseh Silkworm. By Captain JULIAN HOBSON, H.M. Bombay Staff Corps.

I BEG to send you a few notes on the Saturnia Mylitta, or Tusseh silk-moth: as the subject of Tusseh silk is at the present moment attracting some attention, I trust a few words on the cultivation and habits of the larva may be acceptable.

For the last seven or eight years I have yearly procured about a hundred cocoons of this magnificent moth; they are to be found in great abundance in the Tanna districts (in the Concan or lower Ghauts), about forty miles from Bombay, and though I have at times had as many as four or five females out in an evening, and about as many males, strange to say I never, until the 2nd of last May, succeeded in finding them *in coitu:* the next evening the male left his mate and flew away; a few hours afterwards she deposited a number of eggs, and about the same number the following evening. I left the paper covered with the eggs exposed to the open air, and, to my astonishment, on the 12th (nine days after the first batch of eggs was laid) a small brood made their appearance: being quite unprepared for such a sudden arrival of these little creatures, I was quite at a loss what to feed them on. I tried them on the common mulberry, Ziziphus jujuba, Getonia floribunda, but the little fastidious things would not touch any of these leaves; at last I tried them on the Pentaptera coriacea (a tree very common in the Concan), which I was pleased to find they greedily attacked.

The small larvæ on emerging from their eggs, which are about the size of a Jowarée seed (*Holcus sorghum*), with a black horizontal ring round them, measure about three lines in length, slightly hairy, and of a brownish tinge, with two rows of small tubercles along the back and two along either side, from each of which protrude small black hairs; the two posterior tubercles are close to each other and thickly covered with small black hairs; there is also an anal tubercle situated between the two last dorsal tubercles; head very dark brown, almost black, with a small circle of hairs round it.

On the 15th of May the first moult took place, when the larvæ became a dark green colour, the tubercles a shade lighter, the hairs proceeding from them scarcely visible, but the tufts of hairs on the posterior and anal tubercles jet-black. On the 17th the second moult took place, when the larvæ became a lovely yellowish green, tubercles beaded with bright orange, with six black short rigid hairs proceeding from each tubercle in stellate form; the tubercles on the second and third segments, also the anal tubercle, are dark brown: in some of the specimens all the dorsal tubercles are tipped with dark brown instead of orange-red; head and prolegs brown; middle and hind legs or claspers the same colour as the body; spiracles light brown.

On the 20th some dozen underwent the next moult; the tubercles were then of a light buff colour, the six hairs in stellate form much lighter colour and less rigid, with one silky long hair protruding from the centre of the tubercle; colour of the body much lighter, approaching yellow; prolegs brown, the meso or sucker-legs covered with short brown hairs, not visible in any of the former stages; a curious V-form of slate-colour on both sides of the hind or clasper legs, and an inverted V quite white on the forehead. The day after this moult the dorsal tubercles were of a bright golden hue, and the next day two bands of yellow were visible along the six posterior segments on either side. Directly after the larva has emerged from its old skin, the light hairs on the tubercles lie on the body most regularly in a diagonal position, forming a diamond-shaped mark between the dorsal tubercles.

On the 24th the farthest advanced passed through another moult: in this there is a great difference in the larva; the dorsal tubercles are of a much more coppery hue, those on the first, second, third and fourth segments especially: the side tubercles have a bluish tinge, with the exception of those on the fourth, and sometimes fourth and fifth segments,* which are of a bright silvery hue; the spiracles are of a brown colour, with a just perceptible white rim; the first, second and third segments [? second, third, and fourth] are covered with short light rigid hairs; long silky hairs are dispersed over the other parts of the back; prolegs brown; meso-legs or suckers same colour as body, which is a beautiful green, covered with small rigid brown hairs; anal segment brown on the sides; the yellow line along the side above the spiracles more strongly developed. In this moult the body is more transparent.

Just at this time I had to leave the Coucan and proceed to the Deccan: on the march I had great difficulty in procuring fresh leaves, so that, from being exposed to the sun and from want of fresh leaves, many sickened and died. As the Pentaptera coriacea is not procurable in the Deccan, I had again to hunt for leaves that they would eat; fortunately I lit upon the banyan tree (*Ficus indica*) the very first day, and this they devoured greedily.

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* I have no doubt that the silvery tubercle, in some cases on the fourth segment only, and in some on both the fourth and fifth segments, is a distinguishing mark of sex.—*J. H.*

By the 5th of June some appeared to have passed all their moults, from which time they grew rapidly. In the last stage the dorsal tubercles on the five anterior segments are very large and of a beautiful bright golden hue: the silvery tubercle on the fourth segment on the side is much larger; the skin very transparent. On the 17th the first larva commenced weaving its cocoon, which in a few hours was so thick that the larva could not be seen. The cocoon, which is of a brownish hue, is about the size of a pigeon's egg.

Now it occurs to me that this larva might be easily cultivated, and that the silk, which is very strong, would be of the greatest importance in a commercial point of view: the silk appears to be stronger than that produced by the common silkworm (*Bombyx Mori*).

JULIAN HOBSON.

Sattara, June 21, 1864.

Long Duration of the Pupa-state in Eriogaster lanestris.—A friend favoured me with a larva of Eriogaster lanestris in May, 1861, which changed to a chrysalis during the following month. I expected to see the imago appear during the February following, but was disappointed, as they did not emerge until the latter end of February and the beginning of March, 1863. Is it not an unusual circumstance for this species to remain so long in the pupa state?—*T. E. Gunn.*

[I think not: I have had them as much as five years in the pupa state: it is a curious and wonderful provision of Nature that many insects have this diversity in the duration of the pupa state, a state much less liable to destruction by any sudden catastrophe than either the larva or imago.—*Edward Newman.*]

Larva of Eupithecia pulchellata, Steph.—In my note on this larva (Zool. 9253). I inadvertently omitted to mention that Mr. Hellins and myself were indebted to the kindness of Mr. Hodgkinson, of Christchurch Street, Preston, for our eggs of this moth. The persevering energy which this gentleman has shown in endeavouring to assist us by procuring these ova cannot be sufficiently praised, and I regret very much that I did not in my former note couple his name with those of Mr. Hellins and Mr. Doubleday. Dr. Breyer, of Brussels, informs me that during the present summer Dr. Boissler, of Wiesbaden, has taken larvæ on the flowers of Digitalis contigua, which he has little doubt belong to this species.—*H. H. Crewe.*

Errata.—In my note (Zool. 9253) "Warstone, near Leck," should be "Warslow, near Leek," and "Mr. George Bates" should be "Mr. George Baker."—*H. Harpur Crewe.*

Eupithecia pulchellata.—Your notes on Eupithecia pulchellata (Zool. 9253) tell the history of the discovery of the larva and food-plant as far as known to you: had I been aware that you were about to publish so soon, I would have furnished you with some additional particulars, which would have made the history more interesting, and would have enabled you, as I am certain you would yourself have desired, to avoid all appearance of slighting any one who was concerned in the discovery. The impression that foxglove might prove the food-plant was strongly felt by several entomologists as early as August, 1863, when Mr. Hodgkinson, who had worked very hard during the previous June in getting eggs, and also Mr. D'Orville, independently of each other, searched the Digitalis purpurea well, and succeeded each in finding the larva of a Eupithecia, unfortunately not the right one (E. pulchellata probably being in pupa at that date), but only that universal feeder E. castigata, to which no green thing that grows seems to come amiss, and which I need not tell you is of a type totally distinct from that to which E. pulchellata belongs; and I know I received the same species from another entomological friend who had been searching the foxglove, but at this moment I do not recollect from which of my friends it was. Late in the same year (October 27), and not at all in connection with the captures mentioned above, I received from Mr. Doubleday the suggestion that Hübner had mistaken the larva of E. pulchellata figured by him on Digitalis lutea for a variety of E. linariata. However, during the winter and spring other engagements had pretty well put all entomological thoughts out of my head, and I was determining to do little or nothing in the way of rearing larvæ this season, when, on the 4th of June, Mr. Hodgkinson, bent on getting this species worked out, if possible, sent me some eggs again. Being too much occupied just then to spend any time in searching for food, or even to recall distinctly our last year's doings, I begged him to tell me just the three or four plants which he found most abundant in the locality of the moth, and it was from the information furnished in his reply that when the larvæ hatched I supplied them with two or three flowers of foxglove, some heather, and some Galium saxatile; this last because Mr. Hodgkinson told me that Mr. Gregson had found the larva on it last year; and according to my custom in dealing with "unknowns," I added a little Polygonum aviculare. In four or five days' time I found that about five out of the fifteen little larvæ were ploughing grooves in the foxglove flowers, the others having missed the right food and perished from starvation. The rest of the story is known, and I will only add that I claim no merit to myself in the whole matter.—*The Rev. J. Hellins, of Exeter, in a letter to the Rev. H. Harpur Crewe, who communicates it.*

Occurrence of Eupithecia campanulata of Herrich-Schæffer in Britain: Description of the Larva and Pupa.—A few weeks since, whilst walking in a beech wood near Tring, I found a number of larvæ of some to me unknown species of Eupithecia feeding in and upon the seed-capsules of the nettle-leaved bell-flower (*Campanula trachelium*, L.). Dr. Breyer, of Brussels, having mentioned that he had bred Eupithecia campanulata, *H.-S.*, from larvæ feeding on the seed-capsules of this plant, I at once surmised that my larvæ might probably be this species. I therefore enclosed two full-fed larvæ in a quill, and posted them to Dr. Breyer, who at once pronounced them to be true and indubitable larvæ of E. campanulata. The larva belongs to the Absinthiata group, but is totally distinct from all the British members of this family and from every other British Eupithecia I am acquainted with. I am happy to say that Mr. Buckler has taken some most faithful and life-like coloured drawings. I have much pleasure in affording the following description of the larva and pupa:—Rather short and stumpy in shape, closely resembling the larvæ of E. minutata and E. absinthiata. Ground colour light ochreous-brown. Central dorsal line very deep brown or black, intersecting and uniting a chain of very strongly defined black or deep brown lozenge-shaped spots placed in the centre of each segment. Subdorsal lines very slender and faint blackish or deep brown. Head dingy brown or black.

Spiracular and central ventral lines dingy black or brown. Central dorsal spots becoming corpulent and merged in the central line on the anterior and posterior segments. Skin rough and wrinkled, sprinkled with a few short whitish hairs. Feeds upon the unripe seeds and seed-capsules of Campanula trachelium, *L.*: till nearly full fed remains on the surface of the capsule, just at the crown. When very young lives in the dry corolla-tube. In confinement will feed upon various garden species of Campanula. Full-fed end of August and beginning of September. Pupa enclosed in a slight earthen cocoon. Thorax and wing-cases golden yellow. Abdomen reddish. Abdominal divisions and tip red. Resembles the pupa of E. expallidata. The perfect insect in some respects resembles E. expallidata, but is very distinct from all the other members of the Absinthiata group.—*H. Harpur Crewe; The Rectory, Drayton-Beauchamp, Tring; September* 7, 1864.

Agrotis Segetum and the Turnip Crop.—I yesterday found thirty larvæ of Agrotis Segetum at the root of one small turnip: I could not have believed this possible had I not dug them up with my own hands, and seen them with my own eyes.—*H. Harpur Crewe.*

[I have received an almost incredible number of communications on this subject: the ravages of the larva are doing incalculable mischief in almost every part of the kingdom. I am preparing its life-history for publication in the 'Entomologist,' but must await the emergence of the imago, being uncertain as to the species.—*Edward Newman.*]

The Beating-Net or the Umbrella?—The question has been mooted, which of these is best to use in our researches after larvæ. I have used and found serviceable the former (consisting of an iron folding ring, such as anglers use for a landing-net, to which is attached a bag of stout holland), which I have already commended in print. This is portable, as it can be conveyed in the pocket, though it necessitates the carrying of two sticks; one to serve as a handle, and the other as a striking implement. Latterly I have found that an umbrella (gingham or alpaca) does decidedly answer best. It takes in a much greater extent of leaves and twigs, and the objects precipitated into it by beating are more readily seen and secured. In the holland bag, to examine its contents, you must pause occasionally and turn it inside out, a tedious, and when the wind is rough a rather difficult, process. For sweeping, or for beating low plants or grasses, it is handiest, and may be occasionally resorted to. The entomological umbrella does not certainly improve in its personal appearance. Its ribs become bulgy, its outer surface rough, and it is known and shunned by everybody but its owner. A true naturalist, however, lightly esteems this and similar annoyances. I have found that a much larger proportion of the larvæ taken by beating die in the process of rearing than of those captured in other ways. With some, there is no doubt, it arises from an injury inflicted by this method; and the weakly or diseased larvæ of certain species will more readily fall from their positions. Sharp, jerking taps given to the branches or twigs are more effective in obtaining larvæ than a prolonged and gradual shaking. It must not be forgotten that searching must not be neglected entirely; as there are some species of which we shall only find the larvæ in this way. I may instance Gonopteryx Rhamni and the genus Dicranura.—*J. R. S. Clifford; 21, Robert Terrace, Chelsea, September* 7, 1864.

Life-Histories of Sawflies. Translated from the Dutch of M. Snellen van Vollenhoven, by J. W. MAY, Esq.

(Continued from page 9072).

CIMBEX AXILLARIS, *Panz.*

Imago, *Panzer, Fauna Germ.* 84, f. 11. *Jurine, Nouv. Méthode,* pl. 6, fig. 1. *Klug, Versuch einer Darstell. der Fam. und Arten der Blattwespengatt; Cimbex,* p. 84. *Hartig, Blatt und Holzwespen,* f. 68.

Larva undescribed.

Cimbex niger, capite fusco, antennis ac tarsis rufo-flavis, clypeo, prothorace, abdominis segmentis 3o, 5o, 6o, 7o, 8o, ac 9o flavis.

Some years ago I met with a Cimbex larva in the collection of my friend Dr. J. Wttewaall, which was quite new to me, and of a striking appearance, both on account of its size and the beautiful arrangement of its colours; the larva in question was preserved in spirit. At that time I thought my friend told me that this unknown larva had been taken feeding on raspberry bushes in the neighbourhood of Voorst in Gelderland, and as I much wished to have such a larva alive, I asked him to do what he could to get me one or more of them. I afterwards received from my friend Dr. Herklots some drawings which he had some time previously bought at the sale of books and engravings of Professor Reinwardt, in one of which drawings were represented two similar larvæ, together with a coarse large cocoon and an imago of Cimbex axillaris, accompanied by a pair of East Indian Scutelleridæ.

A year passed by, during which time Dr. Wttewaal informed me that, notwithstanding all his efforts, he had not been able to find a Cimbex larva of the species I had named. As he was about changing his place of residence, and so the chance of obtaining the larvæ of C. axillaris from Voorst was as good as gone, I addressed myself to Mr. E. A. de Roos van Westmaas, who lived at Velp, and requested him to look out both there and at Daalhuizen for the larvæ I wanted, and in order to enlist the country boys in the search I offered a premium of twenty-five cents for each specimen. The result of my friend's exertions was that on the 14th of July, 1860, a larva was sent to me, taken, not on the raspberry, but on a hawthorn hedge, and on which hedge, according to his letter, it was to be found annually in small numbers. I made a drawing of the larva the same day I received it, and afterwards, in order to rear it, took it with me to

Brummen, where I was going to spend a few days with Dr. Ontijd. During my stay I searched more than once, principally in the evening after sunset, on the hawthorn hedges, which are so plentiful at that place, but the only result was that I met with a single example on the 31st of July, in that year, at Rhienderstein.

Thus I have only had an opportunity of watching two larvæ of this species, but as, fortunately, both spun up, pupized and emerged, and as one turned out to be a male and the other a female, I may consider that I am sufficiently acquainted with the life-history of this species to include it in these papers.

I was subsequently assured by Dr. Wttewaall that my idea as to the nature of the food of the larva was to be attributed to some misunderstanding on the part of one of us, and that the first larva which I had seen preserved in spirit was found on the hawthorn (*Cratægus oxyacantha*), as were the other two. The larvæ are very pretty and beautifully marked creatures. Their colour is bluish white, with somewhat reddish heads. They usually remain curled up, as in fig. 1 of our plate 1, and when they move about or feed, they still almost always keep the last segment of the body curled round underneath. The head was globose, the eyes small, circular, black and seated in round black spots low down on each side of the head. The feelers were also black and extremely minute. A longitudinal suture was distinctly observable on the vertex and two transverse impressions. The body was bluish white, except at the sides, where a yellowish tint was perceptible. Along the back was a broad bluish white line, on which were first four large elliptical spots, and then alternately after every other one a larger and a smaller round spot, as shown in fig. 4, somewhat enlarged. On either side of this dorsal line is a line composed of small transverse black and orange spots, as represented at figs. 3 and 4, enlarged. On each segment the markings are as follows:—*first*, a little wedge-shaped black line, close against it an orange spot, broadest at the end directed towards the dorsum; succeeding this are one or two longer black lines, then a smaller one, and, lastly, three of nearly equal size, all black. The last segment has three black spots in the centre, and on either side one orange and three black lines. The stigmata were shaped like the impression of a stag's hoof (see fig. 5, much enlarged). Above the stigmata were clearly to be seen round black valves, as if belonging to excretory ducts, as is usually the case with Cimbex larvæ. I have, however, never seen these larvæ eject any fluid (see on this point the description of the larva of Abia ænea, vol. i. p. 144; Zool. 7524), but the one taken at Rhienderstein was quite wet and covered with drops when found. The prolegs were white; at the end of the penultimate joint was a small black transverse line, while the last joint was longitudinally striped with black. The claws were black, the belly and legs entirely greenish white.

The larger of my larvæ was thirty-seven millimetres long. I cannot well remember whether these larvæ fed during the day time, or at night, and I have made no note of the circumstance; I think the former, in which they would agree with the large Cimbex of the alder, and not with Cimbex Betuleti. They fed voraciously. Their excrement was somewhat remarkable, for each particle had a small reddish spot on one side, the remainder being quite black (see fig. 6).

At the beginning of August the larvæ were full grown. The one which I had found at Brummen began to spin up on the 10th of August. This one came out at Leyden on the 25th of April, 1861. The one from Velp had already spun up on the 2nd of August, and came out a few days before the other. They spun up between the leaves and the bottoms of the boxes in which I had placed them. The cocoon was brownish yellow, single, very hard, shining, strongly cemented, and very smooth inside (see fig. 7).

The perfect insects are very handsome creatures, as may be seen by a glance at figs. 8 and 9. The first represents the male, the second the female. The external distinctions between the two sexes consists solely in the thickness of the femora and the appearance of the under side of the abdomen.

The head is brown on the vertex, and the cheeks darker above the antennæ; below them and on the clypeus shining yellow, and everywhere covered with fine brown hairs. The antennæ consist of five joints and a thick knob, which again appears to be composed of three joints, but this circumstance is not quite clear. The first joint is short, thicker than the following one, brown, hairy; the second is the smallest, also brown; the third is much longer, round, narrow, somewhat expanded at the end, brown at the base, becoming obscure orange further up; the two following joints are also of this latter tint, they are of very nearly equal length; the thick round knob is also concolorous with them.

The compound eyes are dark purplish brown, oval, prominent; the three simple eyes of the colour of garnet. The upper jaws are bidentate, dark brown; palpi pale brown. Thorax brownish black, and thickly hirsute, the prothorax bright yellow, and the scutellum red; the sides below the wings are also more or less red. The tegulæ are shining black, the posterior margin being yellow. Wings shining, pale brown; the fore wings from the anterior margin to the externo-medial nervure, and including the marginal and submarginal cells, are a decided yellowish brown, which is also the colour of the nervures in all four wings. The apices of the anterior wings are smoke-coloured, and more or less those of the hinder wings also.

The legs are ferruginous as far as the tarsi, which are yellowish red. Coxæ, apophyses and femora are marked with black longitudinal lines; the legs are very hairy, as far as the first joint of the tarsi. In the male the coxæ and femora, more especially those of the second and last pair of legs, are much coarser, longer and thicker than in the female; and in the former, on the posterior border of the intermediate coxæ, is found a hatchet-shaped projection ending in a little blunt spine below.

The abdomen is yellow. The first, second and fourth segments are black on the dorsum; the first segment is curved in a forward direction on the posterior margin, and, as it were, cut out, so that a space is left between it and the following one; this space is filled up by a clear white membrane, which may be seen to be frequently moved up and down by the breathing of the animal. In the centre of the dorsum of the third, fifth, sixth and seventh segments is a small black triangle, bordered with brown: in the female this occurs on the eighth segment also. On the under side of the abdomen, which is yellow, the middle segments have little black lines, while the organs of generation are concealed by a broad ferruginous plate on the last segment. The valves of the saw in the females are yellow, with two little black lines.

My two examples were not very lively, and soon died: I was not able to discover the nature of their food.

The body, exclusive of the antennæ or the legs, was 16 mm. long; the male with his legs covered a circle of three centimetres diameter. The female expanded to 37 mm., the male to 40 mm.

Hexagonal Form of the Cells of Bees.—When will this controversy come to an end? In former numbers of the 'Zoologist' the subject was canvassed very often, and if any apiarian will only examine those honey-combs so frequently left in wet, cold summers, before the cells are filled,—in fact, in deserted hives or deserted combs, where no heat or pressure has been able to act on them,—that person must be obdurate to doubt for a moment that the hive bees' cells are originally all formed (except the queens' and drones' cells) of the hexagonal form exactly. But I have no doubt that in many old stocks which have stood a very hot summer, and in which breeding has been going on, or which have been moved in a very heavy state, that the hexagonal shape may have been altered. My opinion is that a heat of 84° to 88° in the shade has a great effect on the wax; even the circumstance of a heavy hive being placed a little on one side on its board will affect the shape of the cells. Mr. Parfitt's statement (Zool. 9155) is perfectly correct. Mr. Tegetmeier has made one observation in which I perfectly coincide: he says it is the bees which carry the queen, and not the queen which carries the bees, to take possession of an empty or deserted hive with old combs. Scout bees may often be seen entering these hives in the swarming season in numbers, and ransacking the combs. But who ever observed a queen enter among these scout bees to put the combs in order, or to reconnoitre, any time previous to the day of swarming? I have recorded that near Burnham, in Somersetshire, a second swarm or "cast" entered a vermin-trap, and on scouring the country it was found that no bees were kept nearer this spot than four English miles.—*H. W. Newman; Hillside, Cheltenham, August* 3, 1864.

Singular Freak of the Insect and Feathered Tribes.—At Hungerford House, Madeley, the residence of Mr. J. S. Wilkinson, a pair of swallows having perfected a nest under the eaves of the roof of the house, were summarily ejected therefrom by a swarm of wasps, who, taking full possession of the tenement, have constructed a very curious pyramidal or inverted cone nest, which is in itself quite a curiosity. What is still more remarkable, however, is that the swallows, nothing daunted, commenced to build a new habitation within two inches of the wasps immediately after being driven from the old one, and have since completed it and reared a brood of young birds, the insects and the birds appearing to carry on their work in the most friendly manner.—*Contributed by Mr. George Maw, of Broseley.*

Larva and Pupa of Ripiphorus paradoxus.—Both coleopterists and hymenopterists will doubtless feel interested in the announcement that the discovery of the larva and pupa of the above parasite has at length been made. On Saturday morning last I was fortunate, on opening a cell contained in a nest of Vespa vulgaris, in discovering a larva of Ripiphorus in the act of consuming the spun-up larva of the wasp to whose body it was firmly adhering. It had not then made much progress in the work of destruction, but in the course of the following forty-eight hours it entirely consumed its victim, with the exception of the skin and mandibles. From other cells in the same nest I obtained pupæ of the parasite as well as specimens of the perfect insect.—*S. Stone; Brighthampton, Witney, August* 23, 1864.

The Locust in Cornwall.—A specimen of the locust (*Gryllus migratorius*) was captured on the cliffs near this place on Tuesday last.—*John Cornish; Penzance, September* 9, 1864.

Proceedings of Societies.

ENTOMOLOGICAL SOCIETY.

September 5, 1864.—F. P. PASCOE, Esq., President, in the Chair.

Additions to the Library.

The following donations were announced, and thanks voted to the donors:—'Catalogue of North American Butterflies,' by J. W. Weidemeyer; presented by the Author. 'Abhandlungen der Naturhistorischen Gesellschaft zu Nürnberg,' Bd. 3; by the Society. 'The Zoologist' and 'The Entomologist' for September; by the Editor.

'The Entomologists' Monthly Magazine' for September; by the Editors. 'The Naturalist,' Nos. 1—9; by the West Riding Consolidated Naturalists' Society. 'The Intellectual Observer,' Nos. 31 and 32; by the Publishers. 'The Journal of the Society of Arts' for August; by the Society. 'The Reader' for August; by the Editor. 'The Athenæum' for July and August; by the Editor.

The following addition by purchase was also announced:—Thomson, 'Skandinaviens Coleoptera,' Vol. 6.

Election of Member.

James Bladon, Esq., of Pontypool (already an Annual Subscriber to the Society), was ballotted for and elected a Member.

Exhibitions, &c.

Mr. Dunning exhibited a number of full-fed larvæ of a Noctua (Agrotis segetum, or A. exclamationis?), which had been sent to him by Mr. J. D. Kay, from Brantingham, in the East Riding of Yorkshire. Mr. Kay had had a field of turnips, worth £150, entirely destroyed by these caterpillars. Numerous similar instances from various parts of the country, and it was mentioned that their ravages were not confined to the turnip-crops.

Mr. E. W. Janson exhibited four species of Coleoptera hitherto unrecorded as British, and communicated the following in reference thereto:—

"1. EURYUSA SINUATA, *Eric.*

Euryusa sinuata, *Eric. Kaef. d. Mark Brand.* i. 372, 1 (1839); *Gen. et Spec. Staph.* 199, 1, tab. 1, f. 2 (1839). *Kraatz, Naturg. d. Ins. Deutschl.* ii. 73, 1 (1856).

A single specimen, the only indigenous example of this interesting species which I have seen, captured by the Rev. A. Matthews, many years since, in Oxfordshire.

It is readily distinguished from its near ally, E. laticollis, *Heer*, by its short prothorax, the sinuate hinder margin of this segment, and its nearly rectangular posterior angles.

"2. LEPTUSA ANALIS, *Gyll.*

Aleochara analis, *Gyll. Ins. Suec.* ii. 388, 11 (1810).
Oxypoda analis, *Eric. Gen. et Spec. Staph.* 154, 29 (1839).
Leptusa analis, *Kraatz, Naturg. d. Ins. Deutschl.* ii. 62, 2 (1856). *Thomson, Skand. Col.* ii. 275, 1 (1860).

Captured during the past month in the Black Forest, Perthshire, by Mr. D. Sharp. Differs conspicuously from L. fumida in its superior size, reddish brown hue, semi-opaque surface, and more strongly and coarsely punctate abdomen.

"3. ALEOCHARA SPADICEA, *Eric.* (Var. *major.* Long. 2 lin.; elytris piceis.)

Ocalea spadicea, *Eric. Kaef. d. Mark Brand.* i. 300, 3 (1839); *Gen. et Spec. Staph.* 61, 3 (1839).
Aleochara spadicea, *Kraatz, Naturgesch. d. Ins. Deutschl.* ii. 98, 18 (1856).

Taken by Mr. J. A. Brewer, in Cumberland, in the autumn of 1863.

I communicated this specimen to Dr. Kraatz, who returned it to me labelled "Ab *Aleochara spadicea* vix distincta."

It appears to me not improbable that Aleochara procera, *Eric.*, *Kraatz* (Ocalea procera, *Eric*), will ultimately prove to have been founded on large dark individuals of the species now under consideration; the specimen exhibited presenting, in its superior size, piceous elytra, and foveolated prothorax, several of the characters assigned to A. procera.

"4. Homalota notha, *Eric.*

Homalota notha, *Eric. Gen. et Spec. Staph.* 126, 101 (1839). *Kraatz, Naturg. d. Ins. Deutschl.* ii. 323, 127 (1856).

Gyrophæna exigua, *Heer, Faun. Col. Helv.* i. 312, 7 (1839).

Gyrophæna pilosa, *Hampe, Stett. Ent. Zeit.* xi. 348, 5 (1850); teste *Schaum, Stett. Ent. Zeit.* xiv. (1853).

Captured by Mr. J. A. Brewer beneath rejectamenta of the River Medway.

The extraordinary resemblance which this species bears to the members of the genus Gyrophæna has, as will be remarked by the above synonymy, misled more than one author concerning its true affinities."

The Rev. Hamlet Clark exhibited a specimen of Buprestis ocellata, a native of Central India, which had been found on board ship between Mauritius and Madagascar, and upwards of fifty miles from land. Prof. Westwood thought the beetle had probably been bred on shipboard.

Mr. B. T. Lowne (who was present as a visitor) said that he once took a specimen of a moth belonging to the genus Audea at sea, and more than 200 miles from the West coast of Africa, which was the nearest land to windward at the time. The genus Audea was previously known to contain two species only, both from Sierra Leone; but the specimen captured as above had proved to be a new and undescribed species, which, so far as he was aware, still remained unique. He had also noticed a butterfly and several grasshoppers on board the ship, all of which must, he thought, have been on the wing for several days, during which they were borne over the sea by the trade-wind.

Mr. S. Stevens exhibited a complete set of the species of butterflies and beetles captured by Mr. Lowne in Southern Syria and Palestine, during the present year.

Mr. Lowne said that the greater part were captured in the months of April and May. Amongst the butterflies, he called attention to a new Lycæna, an Anthocharis, probably new, two species of Gonepteryx, one from the valley of the Jordan, the other (G. farinosa of Lederer?) from Hermon and Lebanon, and to a Papilio closely allied to P. Podalirius, but in his opinion distinct. It differed from its European ally in the greater length of the wing-tails, in the ocelli at their base, and in the markings on the under side of the wings; he had not found P. Podalirius in Syria at all; the new insect, which he regarded as the Eastern representative of P. Podalirius, had occurred near Damascus only. With respect to the Coleoptera, Mr. Lowne said that the country was generally but ill supplied with water, and was too dry for collecting; he had found sweeping unproductive; some Geodephaga he had taken on the coast only; Heteromerous beetles were the most numerous insects, and occurred on flowers, under stones, and in fact everywhere. But on the whole he considered the insect Fauna of Syria poor in comparison with the Flora; like the latter, it was chiefly European in its character, though some of the insects from the South partook of the African type.

Mr. J. R. Larkin, of Elm Cottage, Old Brompton Road, exhibited a novel form of case for the reception of insects; the top and all the sides were of glass; the bottom corked in the usual manner, and framed, so that the whole might be hung picture-wise against a wall.

Mr. Tegetmeier read and presented to the Society an extract (probably) from a provincial (Ipswich?) newspaper of 1833, which contained an account of the first scientific meeting of the Entomological Society of London. [This extract is now affixed to the first volume of the 'Transactions' in the Library.]

Mr. Tegetmeier also brought under the notice of the Society the letters recently published in 'The Times' on the subject of bees and bee-keeping; and quoted numerous errors into which the writer had fallen; such, *e. g.*, as the statement that the queen selects her husband and passes her honeymoon amid the flowers, that a swarm of bees is as large as a bunch of grapes, that bees are affectionate and fond of children, &c. It was to be regretted that a fictitious value had been given to so worthless a compilation by insertion in the columns of an influential journal; many of the statements of the writer had been answered and exposed by Mr. Woodbury in the same journal, but as a further communication from that gentleman had been refused insertion in that newspaper, Mr. Tegetmeier thought it right to give the Members of the Society an opportunity of placing on record their opinions on the matters in question, lest entomologists abroad should imagine that the letters of "The *Times* Bee-master" represented the amount of practical and scientific knowledge current in this country on the subject under discussion.

Prof. Westwood and the Rev. Hamlet Clark also remarked upon the inaccurate and improper manner in which the question had been treated by the anonymous correspondent of 'The Times.'

Prof. Westwood mentioned that he had recently been informed by a correspondent of a disgusting practice which was alleged to prevail in the public parks of London; the charge was nothing less than this, that lice were placed upon the public seats in the parks, with a view to compel the frequenters of those places of resort to hire the chairs which, for their private advantage, certain persons were allowed to let out at a small charge.

Lieut. R. C. Beavan, Bengal Revenue Survey, communicated the following "Remarks on the Tusseh Silkworm of Bengal."

"Syn.—ANTHERÆA PAPHIA, *Linn.* Bombyx Paphia, *Sykes, Trans. As. Soc. Lond.* iii. 541 (plate); Saturnia Paphia, *Helfer, Journ. As. Soc. Bengal*, vi. 42 (1837); Tusseh Silkworm Moth, *Hind. Helfer;* Bughy Silkworm Moth, of the Beerbhoom Hills, *Roxburgh;* Kolisurra Silkworm Moth of the Mahrattas, *Sykes;* Munga Silkworm Moth of the Méchis, *B. H. Hodgson;* Koukuri Mooga of the Assamese, *Hugon, Journ. As. Soc. Beng.* vi. 32 (1837).

"Further mention by writers.—Horsfield's 'Catalogue of the Lepidopterous Insects in the East India House Museum,' ii. 385, No. 916 (1858-9); Col. Gastrell's 'Report on Survey Operations in the District of Bancoorah;' Capt. Walter Sherwill's 'Report on Survey Operations in the Beerbhoom District;' Lieut. Kittloe's 'Journey through the Forests of Orissa,' Journ. As. Soc. Beng. viii. 680; Mr. F. Moore's paper 'On the Silk-producing Bombycidæ of Asia,' Proc. Zool. Soc. 1859; Dr. Walker, 'On the Natural Products of the Country about the Pundeelah River in the Nizam's Territory,' Journ. As. Soc. Beng. part 2, vol. x. (1841); and various notices in Journals of Agri-Horticultural Society.

"List of trees on which the Tusseh larva feeds.—Sal, or Sakwa, or Sakooa (*Shorea robusta*, Roxb.); Badaam, or country almond (*Terminalia catappa*, Linn.); Pullas or Dhak (*Butea frondosa*, Roxb.); Arsun (*Terminalia alata* or *T. glabra*, Wight); Teak or Sagwan (*Tectona grandis*, Linn.); Bair or Byre (*Zizyphus jujuba*, Lam.); Toot or Toout, "Indian Mulberry" (*Morinda citrifolia*, Linn.?);

Semul or cotton tree (*Bombax heptaphyllum*); Koossum or bastard safflower (*Carthamus tinctorius*, Linn.)

"The tusseh silkworm is reared in considerable quantities in Maunbhoom, Bancoorah and Beerbhoom, and its silk, both in the raw and made-up states, forms one of the principal articles of export from these and adjoining districts. In Maunbhoom the arum tree is planted by the natives in small plots near their villages for the purpose of affording food to the larvæ, and the branches are annually lopped off, to prevent the larvæ from getting beyond the sight and reach of those who watch them. The larvæ when first born are placed on these trees, and forage for themselves until the time arrives for them to change into the pupa-state, their keepers merely keeping off birds, ants, snakes, squirrels and bats, all of which are said to feed on the worm, though I am inclined to doubt its being the case with the last three animals. The tusseh-breeders in Maunbhoom are either Bonries or Sonthals: many of them cultivate lac as well, which also requires to be watched, and as this insect thrives best on the same tree as the tusseh, *viz.* the arsun, they are able to combine the two pursuits. I am not aware that any animals prey upon the lac insect; ants are very fond of them, but I fancy only on account of the sweet fluid exuded by this as well as other species of Aphidæ, and not with murderous intent. These are obliged to be watched, in order to keep them secure from the thieving propensities of the other villagers."

After quoting at some length from Dr. Walker's paper (*ubi suprà*), and noticing that many of the facts therein recorded applied equally well to other parts of the country than the territory of the Nizam, the author preceeds:—

"In Maunbhoom the cocoons are sold at the rate of eighty to one hundred per rupee by the tusseh-breeders. I have found it quite easy to rear the tusseh worm in captivity. Having procured a batch of some fifty fresh cocoons from the Maunbhoom jungles in April, 1864, I proceeded to try the experiment, and being of opinion that this species might be easily acclimatized on the mulberry in England, sent thirty-five cocoons, through Mr. F. Buckland, to the Acclimatization Society, as well as some of the eggs laid by the moths that came out of the remaining cocoons. I have not as yet (July 18, 1864) had the advice of their safe receipt. With regard to those I have reared myself, I take the following extracts from my note-book:—

"On the 4th and 5th of June the moths began to come out of their cocoons, and continued to do so nearly every damp and rainy night afterwards. Out of my whole batch only one had died. They invariably come out at night, and seem strictly nocturnal in their habits in the imago state. The average expanse of wing of the female is 7 inches to 7½ inches, and of the male 6¼ inches to 6½ inches. The colour of the cocoons, and of both sexes of the moths, varies considerably; the males are generally of a dark fulvous-buff, fulvous-gray and light slaty gray colour; the females fulvous-gray, light gray or bright grayish yellow. The sexes copulate freely in confinement, always at night, and generally the second night after birth. The females do not try to fly away, though the males do, and damage themselves much in the attempt. They seem to prefer hanging head downwards, and from the under side of a leaf: this probably is a wise provision of Nature to keep them hidden during their diurnal sleep by the leaf they may be on, from their numerous winged enemies. Of all the cocoons I had only one came out during the day, and that early in the morning; they mostly appear between midnight and 4 P.M. The moths are very tenacious of life; after being kept twelve hours under chloroform they recover, and a pin dipped in prussic acid and put through them has no other effect than to make them discharge a black liquid from the wound. For a long time I was quite at a loss how to put an end to the existence of those I wanted as specimens, and at last found that the only effectual method was to plunge them into boiling water, keeping only the body immersed, for about two minutes. The female moth lives longer than the male; the latter dies after copulation, which takes place more than once, if he is disturbed at first. The females begin to drop their eggs the second or third day after birth, often before impregnation, and die after all are laid, *i.e.* in five or six days.

"On the 17th of June the first batch of worms made their appearance, and on being placed on the young leaves of the Badaam or country almond (*Terminalia catappa*), began to feed greedily. The leaves are changed every morning, and kept in a tumbler of water or damp mould, placed inside a gauze-covered box. Care had to be taken, when the worms got large, to keep them supplied twice a day with fresh leaves, morning and evening, and not to put too many together. I lost a large number, more than half-grown, from overcrowding. The heat thus generated caused them to get quite putrid, and one dead one in this state, unless speedily removed, will cause quite an epidemic amongst the rest.

"June 17. The tusseh worm when born is about one-fourth of an inch in length; body hairy and of a chrome-yellow colour; head and tail black, a tuft of black hairs on the neck, just behind the head, and another smaller tuft of the same colour near the tail; a row of minute black spots down the middle of the back connects these two; there is also a row of similar black spots down either side above the legs. Head and body fringed with yellow hairs. Head black and shining, and large in proportion to body.

"June 21. The worms born on the 17th are now nearly an inch long, and have lost the brownish tinge they had when first born. The colour is now a light green, covered with little light green spines, each spine terminating in a tuft of light-coloured hair. The head at first is black; behind it, and separated from it by a little green band, is another patch of black; there are two little black spots or spines on the second segment, and one on the anal segment; these spines are tufted with black hair. The row of black spots down the back are of a bluish tinge, and those down the sides appear to be the spiracles.

"June 21. (Second stage). The ground colour of the worm is now a bright yellowish green; he is still about an inch in length, but thicker and broader, especially about the head and shoulders. The black spots down the centre of the back have entirely disappeared; instead, on either side of where they were, are two rows of yellow spines or dots, light yellow at the base, orange-yellow at tips, and surmounted by star-shaped tufts of black hair, the pair on the second segment the largest. The head and prolegs brown. Four separated black spots, in place of the black patch on the head. The row of spiracles is scarcely visible; on each side of them a row of yellow spines has appeared, making, with those on the back, altogether six rows of these spines from head to tail parallel with each other, and covered with tufts of hair. A brownish tinge on last pair of legs and lower part of anal segment, the latter covered with hairs.

"June 25. (Third stage). The caterpillar is now little more than 1½ inch long, of a beautiful light green colour, with a yellow stripe down each side from the third segment to the tail, which has a brown triangular patch on each side, edged with light yellow. The spots on the rows of spines on the back have changed to a glittering golden yellow colour, the pair on the second segment surmounted by a star of black hairs. The spots on the two rows down each side have also changed; they are now orange at base and sky-blue at tips. Prolegs and head light brown, as also are the hind legs, with small black spots and hairs above them. A yellowish collar of skins round the head, with its attendant spines, which are yellow on the capital segment, and, like the rest, surmounted by black hairs. The eight spiracles down each side are plainly visible, between the two side rows of spines and below the yellow band.

"June 27. The caterpillar, when in a state of rest, hangs head downwards, prolegs and head doubled up, and hanging only by its hind legs. They grow wonderfully fast, and appear on the whole hardy, not requiring much care. At this stage they are much like the figure of the larva of Actias Selene in Horsfield's Catalogue.

"June 29 or 30. (Fourth stage). The caterpillar is now about two inches in length. The spots on the two middle rows of spines are all of a glittering golden orange colour, still surmounted by a few black hairs, but several pure white hairs have appeared about them, on the back only, not extending down the sides. The upper and lower rows of spots on the sides are of a bright blue colour. The head and prolegs of a rich brown; the spiracles orange-brown inside, edged first with black, then with light yellow.

"July 4. (Fifth stage). Caterpillar much the same as before. The spots on the sides, especially on the first few segments are like shining silver, based by blue, and contrast beautifully with the golden hue of the spots on the back.

"July 13. The first caterpillar began to spin. Before doing so the blue spots changed to a beautiful mauve-purple colour, which change, accompanied by increase of length to 3½ inches, about the 8th or 9th of July, may be called its sixth stage, for although I did not see the skin cast, it might have been done during the night.

"The larvæ invariably eat their skins after casting them.

"When about to change, the worm is 4½ inches in length. The process of spinning is well described by Lady Gilbert, whose account I quote (from Horsfield's Catalogue):—'The caterpillar commences its operations by drawing a few leaves slightly together, as if to screen it from observation. It then spins a strong cord, composed of many threads, altogether about the thickness of a crow-quill, at the end of which it weaves the cocoon.'

"One end of this cord is looped round a twig, and when hard the cocoon cannot be detached without cutting the twig close to this loop. In the Maunbhoom jungles the cocoons may be seen hanging from the bare branches of the Sàl trees in March, and are apparently constructed without any assistance from or connexion with the surrounding leaves. Lady Gilbert continues:—'The cocoon is so transparent for the first six and thirty hours that the larva may be distinctly perceived at work in the interior; after that time the cocoon gradually acquires consistency by the continual industry of the caterpillar, and becomes quite opaque from the addition of a glutinous liquid with which it moistens the whole. When that dries the cocoon appears as if covered with white powder, and in the course of a couple of days becomes perfectly hard.'

"I have not observed this transparency of the cocoon. Some of my cocoons are much darker than the rest, and some light yellow, though the worms have all had the same food."

Papers read.

Prof. Westwood read "Descriptions of new Species of Sagrides and Megalopides from the Old World and Australia."

The Rev. Hamlet Clark read "Descriptions of Species composing the genus Schematiza, *Chev.*, *Dej. Cat.* (Phytophaga, Gallerucidæ)."

New Part of the 'Transactions.'

A new part of the 'Transactions' (Trans. Ent. Soc. Ser. 3, Vol. ii. Part 2), which had been published since the previous Meeting, was on the table.—*J. W. D.*

Swarm of Syrphus Pyrastri on the Coast near Bridport, Dorset.—On the 16th of August, as I went to bathe at my usual spot, about one mile west of Bridport Harbour, I was startled at the number of bees buzzing around me, and, on closer attention, I observed that the insect was a trifle longer than our common bee, with a deep black body, and several (I think six) transverse bars on the back. As far as my experience went, it was stingless. On swimming out about a hundred yards I noticed the same bees floating on all sides. The same day my son, who was bathing at one mile to the east of me, observed a similar phenomenon. I am informed that a boat two miles off at sea was surrounded in like manner. There was a gentle breeze shifting from north to south, and a long drought had preceded the first day of their appearance. On the Sunday following (the 21st) my friend Mr. Sholl called my attention to several specimens of the same insect in my garden, at a mile and a half from Bridport Harbour. I regret having failed to secure specimens. I conclude this species to be migratory, as I have very rarely seen any of the common flies and butterflies of the coast driven out to sea.—*George Symes; Bridport, August* 26. 1864. [Communicated by Mr. F. Smith, who appends the following note.]

Note on the "Migratory Bees"? in Dorsetshire.—The migratory bee was no doubt Syrphus Pyrastri. I saw them in thousands at Bournemouth; one day a line of dead ones extending from Pool Harbour to Christchurch Bay, a distance of not less than six miles: their numbers were really incredible.—*Frederick Smith; British Museum.*

Notes on the Distribution of Insects in the Channel Islands.

By F. WALKER, Esq., F.L.S.

THESE notes were made between the 26th of May and the 17th of July, 1860; and these seven weeks were thus divided between the Islands and the French coast by St. Malo:—Guernsey, May 26th—June 3rd; June 15th—19th. Sark, June 4th—11th. Herm, June 13th—14th. Jethou, June 14th. Jersey, June 20th—July 6th. St. Malo, June 27th—29th. Alderney, July 7th—9th.

The weather, till the beginning of July, was generally cold and windy, and the previous months were remarkable on account of the low temperature and the quantity of rain, and the backward vegetation.

The Flora of these Islands has been described by Mr. Babington, in his 'Primitiæ Floræ Sarnicæ,' which work includes a sketch of the geology of the same district by Mr. Lukis, who observes that the rocks differ somewhat in structure from those of Brittany, and from those of Devonshire and Cornwall. It appears that during an early period, when the distribution of land and of sea was very different from what it is now, an island extended from Italy across France to the West of England, including Brittany and the Channel Islands. In the course of a long succession of ages some parts of this region were submerged, and the Channel Islands, whose configuration indicates their previous existence as mountain-tops, still continue, though they are gradually sinking into the sea. They were thus isolated from Brittany and from Western England, and from each other, before the bed of the cretaceous sea was elevated, or before the region that includes the South of England and the opposite district of France rose above the waters.

Thus their Fauna, though resembling that of Western England, is more exclusively primitive, for it has not been increased by the Germanic Fauna, that spread from Germany to England before these two countries were divided; nor by the French Fauna, that at a later period spread from France to South England before the sea separated the opposite coasts. It has been still less intermingled with the Scandinavian Fauna, and with the Spanish Fauna; and the mildness of the climate of these isles is owing to their small size and to their low elevation, and to the Gulf Stream which partly washes their coasts. The bright blue colour and transparency of the sea around the Islands differs remarkably from the green and dull sea about the English coast.

Guernsey may be divided into two districts, which differ much from each other in aspect and in their respective Faunas.

The first district consists of low plains, which have been overspread with sand and with *detritus* from the sea-shore, as they gradually sank nearer to a level with the latter.

The other district forms the more lofty part of the Island, and is bordered on the coast by precipitous rocks, which are intersected with picturesque little ravines or valleys leading to the bays here mentioned.

The first district is composed of the following bays:— St. Samson Harbour, Bordeaux Harbour, Grand Havre, Saline Bay, Cobo Bay, Vazon Bay, and Pyrelle Bay.

The second district may be divided into these bays: — Rocquaine, Pleinmont, Creux Mahie, Bon Repos, Corbiere, Le Gouffre, Saint Bay, Petit Bôt, Moulin Houet Bay, and Fermain Bay.

Herm, in its western part, is like the first district of Guernsey; in its eastern part it resembles the second district.

Sark and Jethou are wholly like the second district of Guernsey.

Jersey has a much more extensive Insect-Fauna than is afforded by all the other Islands, and it may also be divided into two districts.

The first district corresponds with the lowlands of Guernsey, and contains St. Ouen's Bay, St. Aubyn's Bay, Granville Bay, and St. Catherine's Bay.

The second district is like the second district of Guernsey, and includes Rozelle Harbour, Boulay Bay, Grève de Lecq, and others which I had not an opportunity of visiting.

Grève de Lecq and St. Peter's Valley, which leads to St. Aubyn's Bay, are well wooded, and when they are thoroughly investigated the present Fauna of the Island will probably be much increased.

Alderney, with the exception of Braye Road and Corbelets Harbour, resembles the second district of Guernsey.

The coast about St. Malo consists chiefly of low, sandy plains, and the Fauna, in the neighbourhood of the sea, is to some extent like that of the first division of Jersey and of Guernsey; at a short distance inland several continental forms appear, and these have migrated northward or westward thus far, but do not extend to the Channel Islands.

ARACHNIDA.

I am indebted to the kindness of Mr. Blackwall for the names of the species here mentioned. These species indicate two distinct Faunas of the Channel Islands, one much earlier than the other. The first Fauna is represented by the ground-spiders, the Lycosæ, the Drassi and the Dysderæ; these are very plentiful, and occur under nearly all the large loose stones; they are especially abundant in Guernsey and in Sark, and, as the surface of the isles is gradually diminishing, the spiders may have become more and more crowded thereon. The species of the second Fauna are of comparatively recent diffusion, and some of them seem to have been lately introduced. This Fauna is most prevalent in Jersey, and is represented by the Epeiræ, the Thomisi, and the Theridiona. The Epeiræ are most numerous along St. Ouen's Bay. The only specimen of Thomisus citreus seen was in a garden at Rozelle Harbour; this spider is sometimes yellow, sometimes white; the yellow variety frequents yellow flowers, and the white variety frequents white flowers; and the spider is thus less apparent to the insects on which it feeds when they are stupified with the juice of the flowers. Pholcus phalangioides also seems to have been recently introduced, and the only specimen observed was in an apartment.

The following list shows how the species appeared to be distributed through the Islands:—

Guernsey.—Lycosa obscura, L. piratica.

Guernsey and Sark.—Lycosa agretyca, Drassus pedestris, Pachygnatha Degeeri, Tetragnatha extensa, Epeira antriada.

Guernsey, Sark and Jersey.—Salticus scenicus.

Guernsey, Sark, Herm and Jersey.—Dysdera erythrina.

Guernsey, Herm and Jersey.—Drassus lapidicolens.

Sark and Jersey.—Salticus cupreus, Thomisus cristatus, Drassus clavator, Ciniflo similis.

Sark.—Philodromus cespiticolis, Ciniflo atrox, Neriene graminicola, N. longipalpis.

Herm.—Drassus ater, Pholcus phalangioides.

Jersey.—Lycosa exigua, Dolomedes mirabilis, Thomisus erraticus, T. citreus, Clubiona amarantha, Ergatis benigna, Theridion lineatum, T. pulchellum, Epeira apoclisa, E. solers, E. calophylla.

Alderney.—Thomisus bifasciatus.

St. Malo.—Thomisus pallidus, T. incertus, Tegenaria alpestris, Theridion Carolinum, Linyphia tenuis, Epeira acalypha.

F. WALKER.

(To be continued).

Curious Worms within the Peritoneal Sac of a Redthroated Diver shot at Flamborough.—I received a few days ago, in the flesh, a specimen of the redthroated diver which had been shot off Flamborough, by Thomas Leng, of that place. It was in the summer or breeding plumage, and I believe of the second year, for the shades of colouring are not so perfect as in a fully mature specimen, and the red on the throat is of more than usually circumscribed dimensions. This imperfection of colouring may, however, have been due to other causes than that of immaturity. On opening the body to ascertain the sex, I was astonished to find within the peritoneal cavity or sac numbers of small white worms, varying in length from a quarter of an inch to nearly an inch. These worms appeared in the greatest numbers within the folds of the mesentery, although they were scattered here and there throughout the whole peritoneal sac, and were consequently external to the bowel. Their locality appears to me very strange, for although Entozoa dwell in and feed upon most of our own organs and their cavities, as well as those of the lower animals,—of which the "fluke" in the liver (especially of the sheep), the "hydatid" in the liver and brain, &c., and the various intestinal worms are the most familiar examples,—I have never before heard of worms external to the cavities of the stomach and bowel, or those special organs in the substance of which they find a suitable habitat. That the largest bag of serous membrane in the body should be the abode of parasites, so formidable in power and appearance, is very strange; and yet the bird in every respect, unless we except the dullness of plumage, appeared to have been in good health and condition. It therefore would seem that no organ or organized structure is exempted from the presence and attacks of the parasitic entozoon in one form or another. The liver, kidney, brain, and even the eye and heart, have been the selected abode and prey of parasitic life, and it would appear that the delicate and highly sensitive surface of the chief serous membrane of the body is equally liable to their predatory attacks. These worms were evidently of the genus Tænia, and were more or less jointed. They appeared to be made up of a mouth or sucker, presenting a circular concave disk, with four or five holes or suckers arranged in a circle, just within an outer circular lip, and external to an inner circular concavity (possibly a provision for the production of a vacuum, by means of which the creature attaches itself to its living prey), a narrow neck (like that of a bottle), a vermiform-looking body, which is the thickest part of the parasite, and which, like the whole structure, is of a dusky white colour, and a tail, made up of several segments or joints varying in number from four to eight, according to the size of the worm. The creature would seem to add to its length by the growth of additional segments rather than by an increase in the size of those it originally possessed. Indeed these segments would hardly appear to be essential to the existence of the worm; for in some of the smaller specimens I examined there was no trace of any joint or segment whatever. These joints seem to fit into or overlap one another in the same way as the vertebræ do in the spinal column of an animal.—*W. W. Boulton; Beverley*, *July* 26, 1864.

Period of Gestation in the Badger.—Since my quotations on this subject were made from the 'Field' newspaper (Zool. 9218), Mr. Freeland Young has published a well-authenticated instance of a female badger producing young after being fifteen months in solitary confinement.—*Edward Newman.*

Seals of the Coast of Yarmouth.—About two months since two fine examples of the seal were captured off the coast of Yarmouth by some fishermen, by getting entangled in their nets; they were exhibited for several days in the streets of this city by their captors: a third specimen was taken on the 12th instant. The last mentioned is now in the hands of a naturalist in this city for preservation.—*T. E. Gunn; Norwich, September* 14, 1864.

[Will my correspondent kindly complete this information by saying to what genus and species the seals belong; their being captured and exhibited must have afforded ample opportunity for deciding this interesting point.—*E. N.*]

Arab Falconry.—The Sheik Bou Disab, whose guest I was, has brought with him his falcons, and afforded me an opportunity of observing for the first time the Arab falconry, a sport still pursued with all the zeal, skill and science displayed by our ancestors in the " noble mysterie." The villein who presumed to raise his hand against the king's deer was not more certain of condign punishment from the Norman than the plebeian sebaur who should dare to cast a hawk in the Sahara. No agha or sheik of high degree ever moves for war, pleasure, or business unattended by his falconers, who are his confidential lieutenants. The care of three falcons is considered sufficient employment for one falconer with an assistant; and on the march one or two of these important personages follow, mounted immediately behind the sheik, with a hooded falcon on the wrist, another on the shoulder, and another on the top of his head. The houbara bustard is the favourite quarry, but eagles, kites, sand grouse (and, in the case of the large sakk'r falcon, the gazelle), afford equal sport to the huntsman. Our day's pursuit was to be the bustard. When one is descried the whole cavalcade instantly halt; the hawk on the wrist is transferred to the hand of his master, who, attended by the favoured few, instantly sets off, and, unhooding his bird, throws him towards the bustard. Much skill is exercised in drawing the attention of the falcon to the game before it rises. Should it unfortunately take wing before its pursuer has poised herself above it, an ill-trained or impetuous bird is very apt to strike it in the air; this, according to the view of your desert connoisseur, is a most unpardonable offence, to be punished with death. A skilful hawk will at once rise to a considerable height; then swooping down, make feints till the bustard takes to its legs instead of its wings. The falcon then poises herself over it, while a second is flung off the wrist, and the two together give chase, the speed of the houbara being such that a fleet Arab horse can scarcely keep up with the pursuit. The poor bird runs along, aiding its speed by a perpetual fanning with its wings, its head stretched forward like a corncrake's, and its conspicuous black and white ruff folded close over its neck, a pitiable contrast to the proud fellow who was lately strutting with head erect, elevated crest and expanded ruff, challenging all comers. The pursuers hang over him at the height of only a few yards, and at each effort he makes to take wing swoop down with a feint. It is considered the excellency of a falcon to make these feints at the quarry till he is nearly exhausted, when the fatal swoop is made, and the bird instantly drops, struck dead by the hind claw having pierced its vertebræ. This manner of hunting is probably adopted to afford more prolonged excitement to the horsemen, but chiefly from the singular mode of self-defence adopted by the houbara, and which I observed on this occasion. As the hawk approaches the houbara ejects, both from the mouth and vent, a slimy fluid. A well-trained bird eludes this shower by repeated feints, until the quarry's supply of moisture is exhausted. An impatient one rushes in and gets his whole plumage so bedaubed that his flight is materially impeded, and his swoop when made is irresolute. Three houbaras and some sand grouse were captured in this day's expedition by three falcons, and the chase was terminated merely on account of the fatigue of the horses. Bou Disah expatiated much on the chase of the gazelle, and I have seen one brought into camp taken by these means. But this is a very dangerous pursuit for the falcons, who frequently impale themselves on the horns of their prey. It is not uncommon for both pursuer and victim to fall dead at one mutual stroke. In the pursuit of the sand grouse no such dallying is allowed as with the bustard. The covey rises, the hawk is thrown off with a jerk, another and another are cast off in rapid succession; each singles out his own victim, and strikes him in mid-air. But the same falcon is seldom trained for both sports. The flight of the sand grouse resembles that of the golden plover, and they attempt in wheeling circles to rise above the hawk. Thus, scattering at a great height, they often distract his pursuit, and unless the falcon has been unhooded and thrown the very moment they were flushed, they are frequently successful. The education for this chase is by means of a trained raven, who wheels in higher circles over the young bird, tempting him higher and higher. The apparatus of African falconers seems to be the same as in the olden time among ourselves; the same hoods and gloves, the same care in feeding, and the same quaint remedies and nostrums. The price of a well-trained lanner, or sakk'r, is from 200 to 300 Spanish dollars; and, on the commission of a friend in England, I repeatedly offered, but in vain, 200 dollars. The sheik esteems a falcon as of the same value with a thorough-bred horse, and will exchange one for the other. No wonder then that I found it impossible to obtain one for my collection. Indeed it would have been a crime of the blackest dye to have shot one had I had the opportunity.—*Tristram's* '*Great Sahara,*' p. 63.

Curious situation for the Skeleton of a Sparrow Hawk.—At the recent restoration of the old church here, the workmen, when clearing the interior, on removing a picture which hung over the eastern window, discovered a skeleton, or rather a mummy, of a bird, which I find to be a sparrow hawk. How came it here? May we not presume that it had followed thither some bird which had literally "taken sanctuary"? If so, the first of the string of epithets applied to it by Mr. Yarrell, *viz.*, "bold, active, vigilant, destructive," is certainly not unmerited.—*C. E. Seaman; Northwood, Isle of Wight, August* 20, 1864.

Willow Wren and Chiffchaff.—Before seeing Mr. Alston's remarks (Zool. 9248) the editor had been informed of the mistake I had made in transcribing my rough notes Zool. 9172. For "Yellow" read "Willow" Wood Wren (*Sylvia trochilus*), the young of which is noticed in the 'Zoologist' (Zool. 9166). It was this species and its nests that I subsequently found so abundant, but the chiffchaff was seen and the date recorded.—*Henry Hadfield; High Cliff, Ventnor, Isle of Wight, September* 2, 1864.

Water Pipit near Brighton.—By the help of Mr. Bree's valuable work on the 'Birds of Europe,' I have identified two pipits the names of which have hitherto been unknown to us: we have had them some time waiting to be named, and at last find them to agree with the water pipit (*Anthus spinoletta*), a species found in many parts of Europe, breeding in mountainous districts, and in the winter found generally in the vicinity of rivers or pools of water in lower countries. This species has been much confounded with the rock pipit (*A. aquaticus*), from which, however, upon examination it proves to be as distinct as it is from the Pennsylvanian pipit (*A. ludovicianus*), the species obtained by Mr. Macgillivray near Edinburgh, in June, 1824, and by Mr. Gray near Glasgow. I have compared them with different rock pipits, and find them to differ even more than Mr. Bree's description shows. The following are a few of the chief distinctions between the two species:—

WATER PIPIT.	ROCK PIPIT.
General tinge of whole bird brown or reddish brown.	General tinge of whole bird olive-green.
Head and hind neck gray; back brown, changing into richer brown on the rump.	Head, hind neck and back olivaceous.
Superciliary ridge white, extending to the occiput; in one specimen intersected by a patch of gray, the extreme end appearing as a white dot.	Superciliary ridge yellowish white, distinct over the eye, and but very faintly indicated behind it.

WATER PIPIT.	ROCK PIPIT.
Throat and sides of neck whitish, changing into tawny on the breast; under parts white, with a few faint streaks on the flanks.	Sides of neck same as the back; throat, breast and all under parts yellowish white; on the breast thickly striped with dark brown.
First primary shorter than next three, which are about equal in length.	First primary the longest; the next three successively shorter.
Tertials ⅜ths of an inch shorter than longest primary.	Tertials barely ¼th of an inch shorter than longest primary.

They are also very distinct from A. Ludovicianus, which in colour is almost exactly like the meadow pipit, and has the first primary the longest. One specimen was killed near Worthing and the other on the beach near Brighton, where the tide flows in, forming several large pieces of water. I suppose this is the first recorded occurrence of this species in our country.—*John Pratt; 44, Ship Street, Brighton.*

Note on the Mountain Linnet or Twite.—I was surprised at seeing in this neighbourhood to-day (August 16th) a flock of the mountain linnet, numbering forty or fifty birds. They were sitting on the "stooks" of wheat in a field near the Humber, and I shot one out of the flock to verify them: it turned out an old female bird. Flocks of these linnets may be often found in the winter months, feeding in the stubble-fields and salt marshes on the Lincolnshire coast. They have always, however, been associated in my mind with winter weather, their single sharp notes instinctively reminding me of snow and sleet sweeping over the fields, and a cold wintry sky, instead of the thermometer ranging as high as 102°, as it did to-day. I have never seen the mountain linnet so far south as this county so early in the season. Perhaps some of the able writers for the 'Zoologist' can say if this is an unusual occurrence.—*John Cordeaux; Great Cotes, Ulceby, Lincolnshire.*

Food of the Starling.—Rooks and starlings have suffered much from the dry weather, and I never knew our friends the rooks commit greater depredations amongst the ripening corn than in this season. For some days lately I have seen a large flock of starlings feeding in a field of green vetches, just in pod, and so much attached were they to this particular field, that when put up they would only fly for a few yards, and commenced feeding again as greedily as ever. An old labourer remarked to me, to use his own words, "*Starns* are getting no end of them tares, sir," and I almost suspected he might be right, and that the starlings, having been deprived of much of their usual food by the intense drought, were driven to find a substitute in the tares. So I shot two for examination, and on opening them found the stomach crammed with insects,—the remains of several earwigs and some small bronze-winged beetles; the rest a mass of a large green Aphis. On examining the vetches, I found the stems literally crowded in masses with this green nuisance; and these, with an occasional beetle, &c., appeared to be the entire food of the starlings.—*Id.*

Note on the Occurrence of the Lesser Spotted Woodpecker at Reading.—On the morning of the 5th of September, 1864, I saw a beautiful male specimen of that somewhat rare bird, the lesser spotted woodpecker (*Picus minor*), in a small but quiet suburban garden on the outskirts of the town of Reading. When I first saw the bird it was on a small apple tree, distant only about twelve paces from the dwelling-house attached to the garden above mentioned. After thoroughly investigating the tree on which I first saw it, the woodpecker similarly visited two other apple trees in succession, equally near to the house, and then took flight, and apparently left the garden altogether. The motions of this little climber were characterized by wonderful agility and considerable restlessness, both as it ascended the trunks of the apple trees and their principal boughs, and also as it flitted from twig to twig, the latter being an action to which it appeared much addicted. On one occasion I observed that it descended the trunk of an apple tree for several inches, progressing tail foremost in its downward progress, with the utmost facility. At another time, in ascending a sloping branch, its upward course encountered a sparrow, which was perched on the bough, but which immediately took flight when the woodpecker came up to it. I observed that the bird in climbing propped itself on its tail, and also tapped the bark with its bill, holding its head at right angles to the trunk of the tree, in true woodpecker fashion, but I do not think that in doing this it attempted to pierce the bark, but merely to explore its crevices in search of any insects which might there be harboured. I ought to add that in the neighbourhood of the garden where I watched this very beautiful little bird, there is an avenue of large elm trees, which it in all probability makes its home.—*J. H. Gurney*.

Scarcity of the Common Swift in the Neighbourhood of Beverley in 1864.—Last summer I recorded in the pages of the 'Zoologist' (Zool. 8726) the comparative scarcity of this bird. The correctness of my observations was questioned by your talented correspondent, Mr. Norman, of Hull, who stated that he had seen many of these birds in that locality (Zool. 8767). I can, however, only hold myself answerable for, and vouch for the correctness of, those circumstances and events which come under my own observation; and I consider it to be the duty of all students of Nature, in common justice to their own interests and those of the glorious study they have espoused, to weigh most carefully all matters committed to print. Still the most cautious observer is liable to error, and feeling the full force of these remarks applied to myself, I have most carefully noted all such matters of interest during the present summer. The result of my observations on the arrival and numbers of our migratory birds is to convince me more firmly than ever that they are decidedly less numerous, both on their arrival and during the breeding season, than in former years. With reference to the swift especially this remark holds good, for although I am driving about the country on all sides of Beverley every day of the week, I have thus far seen only *four* specimens of this bird. I have heard of several being seen hawking over the River Hull, but I have not seen them myself, and I can only state, with every confidence as such, facts that have come under my own observation. These remarks on the scarcity of the common swift, &c., of course only apply to the immediate neighbourhood of Beverley.—*W. W. Boulton; Beverley, August* 6, 1864.

Abundance of the Swift at Leominster.—Mr. Boulton's observations on the scarcity of the swift in the neighbourhood of Beverley, of the accuracy of which I have no doubt, induces me to publish a fact of an opposite character, namely, that the number of swifts at Leominster, in Herefordshire, is this year much larger than I have ever known it. Swifts, during the month of July, were, compared with swallows, as three to one, and, compared with martins, as two to one: it was no uncommon thing to see a hundred swifts on the wing at once, and these scattered widely, not collected into little screaming companies, as we so frequently see them.—*Edward Newman*.

Scarcity of some of the Summer Birds of Passage at Moundsmere in 1864.—About Moundsmere and Bradley, last year, I could see any evening in June from twenty to thirty pairs of swifts, but this year I have not seen more than three birds of this species at one time, either at Moundsmere or Bradley, except on the evening of July 22, when a vast flock flew over in a S.W. direction. In the villages near, I am assured, they have been as numerous as ever this summer. I have not seen more than half a dozen spotted flycatchers in this neighbourhood all the season; and, as far as my observation goes, I have not seen a single redbacked shrike about our hedges since last September: this I think rather remarkable, as a nest of young birds were hatched and allowed to fly off unmolested last year, the nest being built near Bradley. I saw a single bird of this species sitting on a hawthorn-hedge near Salisbury in May last.—*Anthony S. Bradby; Moundsmere, Hants, September* 22, 1864.

Martins congregating in August.—On the 13th of August last, while passing along Willesden Lane, I noticed about two hundred martins (*Hirundo urbica*) collected on the roof and chimneys of a new three-storied house. I could not distinguish any swallows (*Hirundo rustica*) among them. The weather on that day was fine, sunny and hot. Is not this rather early for martins to prepare for their departure?—*Charles B. Wharton; Willesden, Middlesex, September* 2, 1864.

Food of Young Cuckoo.—A short time ago I shot a young male cuckoo which had attained its full length of fourteen inches, but was still attended and fed by its foster-parents—a pair of hedgesparrows. On examining its stomach I was surprised to find that it contained a mass of fine vegetable fibres, apparently the roots of some plant, closely matted together: there were a number of the wing-cases of small beetles and a few larvæ mixed with it, the whole mass being about the size of a small walnut. Have any of your correspondents observed similar cases, or can any of them suggest for what purpose the roots had been swallowed? This specimen has already lost most of the reddish brown colour described by Mr. Yarrell as belonging to the young bird, but it retains traces of the brown streaks on the greater wing-coverts and on the sides of the neck. As observed by Mr. Morris, this change does not seem to be the result of moulting, but rather of the wearing away of the tips of the feathers. —*Edward R. Alston; Stockbriggs, Lesmahagow, Lanarkshire, August* 5, 1864.

[Were not the supposed vegetable fibres the hairs of ursine caterpillars so commonly found in the stomachs of cuckoos?—*Edward Newman*].

Partridges in a Tide Mill-Pond.—While at Sidlesham, a few days ago, a rather curious incident came under my notice. A covey of five partridges fell, or rather flew, into a tide mill-pond there, and were all captured by some boys. I am told that this sort of thing has occurred there before. The "natives" have a notion that partridges cannot fly over salt water. The lower part of the pond where this occurred is pretty well surrounded by houses, and I am inclined to think that the birds were bewildered, and that fright was the cause of their settling in the water. I believe the pond covers about thirty acres.—*W. Jeffery, jun.; Ratham, Chichester, September* 9, 1864.

Great Plover or Stone Curlew near Beverley.—On the 4th of June last a very fine old female specimen of this plover was sent, in the flesh, for preservation, to Mr. R. Richardson, taxidermist, of Beverley. I grieve to say the thick-knee has become quite a *rara avis* on the Yorkshire Wolds, where formerly it was abundant, and where, too, the great bustard (now extinct) was no unusual visitant. This specimen of the great plover had been shot on the 2nd of June, by a farmer, who presented it to Mr. T. Riley, of South Dalton, near Beverley. It was shot near Holme, on Spalding Moor, between thirteen and fourteen miles from Beverley. Several specimens have been since observed, but no other has been obtained, the birds being remarkably shy and wary. These plover had been breeding in the neighbourhood, for a friend of mine interested in Ornithology had found a nest containing a single egg when trying to get a shot at the parent bird. The stomach contained several wing-cases of beetles and a few fibrous roots of some grass, mixed up with flinty gravel.—*W. W. Boulton; Beverley, July* 8, 1864.

The Little Ringed Plover at Kingsbury, Middlesex.

By J. EDMUND HARTING, Esq., F.Z.S.

YOU will be interested to hear of the occurrence of the little ringed plover (*Charadrius minor*).

I am not aware that this rare species has been met with anywhere in England since Mr. E. H. Rodd recorded the capture of a specimen last autumn at Scilly.

On the 30th of August last I was strolling round the water here, with my gun, on the look-out for ringed plovers, dunlin, and other waders that usually visit us at this time of year, when I observed a small bird feeding on the shore, within a few yards of a green sandpiper. The latter was very wild, and rose out of shot; but the former remained feeding, and allowed me to approach within fifty yards. I at first mistook it for a young ringed plover (*C. hiaticula*), never dreaming of Charadrius minor. As soon as it rose, my finger was on the trigger; but hearing the bird's note, which was not at all like that of the ringed plover, but rather like that of the common sandpiper, I was induced to wait and mark the bird down, in order to observe it more carefully. As it flew away I remarked no white line across the wings, and this strengthened my belief that it was not the common ringed plover. Watching it until it again alighted, about a hundred yards distant, I crawled along on hands and knees, and obtained a good view of the bird as it ran along the edge of the water, occasionally stopping to pick up some food. In its flight and note it appeared rather to resemble the sandpipers, but its actions when on the ground were much like those of the ringed plover. It did not associate, however, with the last-named species, although there was a little flock of them also at the water. After watching it for some time, I put it up again and shot it.

On picking it up there could be no doubt of the species—a veritable little ringed plover, although evidently a young bird.

More slender in form than the common ringed plover, the legs are lighter in colour, and the bill almost black. I say "almost" black, because in the living bird the base of the under mandible is decidedly tinged with yellow, which fades, however, and becomes black after the bird has been dead a few hours. Many authors say "the bill is wholly black," but they probably described from specimens which had been some time preserved, and consequently had lost colour; and on this account, no doubt, they have also overlooked a peculiarity which at once attracted my attention. *The eye, which is full and dark, almost black, is surrounded by a circle of a beautiful bright yellow,* and looks as if it were set in gold, but this colour entirely disappears soon after death.

At the time it reminded me a good deal of the eye of the Norfolk plover on a small scale.

I have now had an opportunity, for the first time, of ascertaining that the little ringed plover differs also considerably from the common ringed plover in many other respects, as follows :—

The shaft of the *first* quill-feather only, in the wing, is white; and the white spots, which are always present on the webs of the wing-feathers in the common species, and which give the appearance of a white bar across the wing in flight, are in the little ringed plover absent, and in lieu thereof the tips only of the wing-feathers are margined with dull white. In the last-named species, also, there is a dusky spot on the inner web of the outer tail-feather on each side, which feather in the common ringed plover is always pure white. The number of tail-feathers, however, is the same.

Before skinning my specimen I took it to Mr. Gould, together with a common ringed plover, which I had killed the same day shortly afterwards, and which was useful for comparison. Mr. Gould then carefully ascertained the exact measurements and weight of each, which are as follows :—

	Common Ringed Plover.	Little Ringed Plover.
Weight	2¼ oz. 24 gr.	1¼ oz. 65 grs.
Total length	7½ inches.	6½ inches.
Tail	2⅞ inches.	2⅜ inches.
Extent of wings	15 inches.	13 inches.
Length of wing from carpal joint to end of first quill-feather.	5⅛ inches.	4½ inches.
Tarsus	1 inch (full).	1 inch.

I subsequently dissected the birds, and believe the common ringed plover to be an adult female in the autumn dress, and the little ringed plover an immature male of the year. The difference, therefore, between their respective weights is probably greater than it would have been had both birds been adult. The measurements I think would scarcely vary; at all events they would not vary in the same proportion as the weight. If one may draw conclusions from a single specimen, the food of the two species would appear to be very similar; for I found the stomach of C. hiaticula contained the remains of worms, beetles, and numerous small pebbles; while that of C. minor was filled with small beetles and a single caddis-worm, but contained no sand or pebbles of any sort. I carefully prepared the sternum of each, and found a considerable difference in the measurement of the corresponding parts, thus:—

	Common Ringed Plover.	Little Ringed Plover.
Total length of keel	1 inch 6 lines.	1 inch 4 lines.
Length of keel from base of coracoids	1 inch 5 lines.	1 inch 3 lines.
Greatest depth of keel . . .	7½ lines.	5½ lines.
Length of coracoid	7½ lines.	6 lines.
Length of clavicle	10 lines.	8 lines.
Length of scapular	1 inch 1 line.	11 lines.
Greatest width of furcal bone . .	4 lines.	3 lines.

I may add, for the information of Mr. Rodd and other naturalists who may have seen his specimen of the little ringed plover, which was killed at Scilly in October last, that his bird and mine appear to be identical in size, age and markings.

J. Edmund Harting.

Kingsbury, Middlesex,
September 10, 1864.

Sternum of Little Crake shot in Cambridgeshire.
By W. W. Boulton, Esq., M.R.C.S.

At page 9118 of the 'Zoologist' Mr. Saville records a rare and interesting capture of the little crake in Cambridgeshire.

In detail Mr. Saville describes this elegant and rare visitant, which appears to be only the seventh really well-authenticated specimen that has occurred in Britain.

Mr. Saville has most kindly forwarded for my inspection the sternum of this interesting specimen, which he had already presented to the Oxford Museum.

Feeling sure that a detailed description of this bone, so rarely seen by British naturalists, will prove equally interesting to many of your ornithological readers as it has to myself, I will, with your permission, do my humble best to reproduce its measurements and form on paper.

The osteology of this bird has, so far as I can ascertain, never yet been described; and in truth I feel myself a most unworthy medium of its introduction to your notice.

For the purpose of comparison I have obtained specimens of the moorhen (*Gallinula chloropus*) and the land rail (*G. Crex*), both members of the same family as Gallinula pusilla, the object of our present consideration; observing, however, that the conditions of their retreat and means of subsistence are very opposite; *viz.*, one—the moorhen—in the water, in ditches and marshy places; the other—the land rail—on land, especially in meadows and amongst rough grass.

The little crake would seem, in its habits, to pass an existence intermediate between the two members of its family I have mentioned above. It inhabits marshy places and long, rough grass, but does not swim or dive in the water, excepting when under the influence of fear or necessity.

Its foot is remarkably large in proportion to the size of its body, and would prove a most efficient support to its light frame when hunting water-insects over the surface of aquatic plants, even beyond the limits of its marshy hiding-place.

This greater relative size and spread of foot I am enabled to observe by a comparison of a beautiful adult male specimen of G. pusilla in my own collection with other larger but commoner species of the same family. I purchased my specimen from a very old collector, on whose veracity I can rely, and who informed me that the bird was shot in the neighbourhood of Yarmouth, by a man named Harvey, of that place, during the year 1834.

In order to show at a glance the greater relative spread of foot in G. pusilla, when compared with other larger members of the same family, I will contrast the measurements of the common land rail with those of G. pusilla.

According to Yarrell, the total length of an adult specimen of G. Crex is rather less than ten inches; that of G. pusilla about seven inches; *i. e.*, a difference of about three inches in the length of the two birds, very nearly one-half the total length of G. pusilla.

The measurements of their respective feet, taken from specimens in my own collection, are as follows, *viz.*,

	G. Crex.	G. pusilla.
Outer toe . .	1 inch $\frac{5}{16}$.	1 inch $\frac{5}{16}$.
Middle toe . .	1 inch $\frac{10}{16}$.	1 inch $\frac{9}{16}$.
Inner toe . .	1 inch $\frac{4}{16}$.	1 inch $\frac{4}{16}$.

(Short measurement).

The specimen of G. Crex from which the above measurements were taken was rather over eleven inches in length, and was therefore unusually large, and more than half as long again as my specimen of G. pusilla, which measures exactly seven inches. Yet the foot of the smaller bird is of quite as great a spread as that of the larger bird, with the exception of the middle toe, and in the greater length of this toe G. Crex exceeds that of G. pusilla by only the sixteenth of an inch, which advantage is nearly balanced by the inner toe of G. pusilla actually measuring slightly more than the same toe in G. Crex.

In all members of the family Rallidæ we find a body more or less compressed or flattened on the sides, as though the bird had been forcibly squeezed between the two hands.

This peculiar formation is designed to enable the bird to run with comparative ease between the stems of grasses and marshy plants, amongst which it hides and feeds, without checking its speed on the one hand, or causing such a disturbance of the covert on the other hand as to reveal its whereabouts.

We also find the body deep from above downwards, and as a consequence in the skeleton we find a corresponding deep keel to the sternum. This is always the case in birds whose power of flight is considerable. The rails are for the most part migratory birds, being spread over an extensive geographical range, and only visiting these shores at certain seasons of the year. Their powers of flight must therefore of necessity be highly developed, and thus we find on dissection of their bodies that the muscles called into action during flight are largely developed; and the keel of the sternum, to which the muscles are principally attached, is proportionally deeper, stronger and rougher in its ridges than in many other birds of equal size.

The keel is apparently set very far back on the sternum, but this appearance is in reality due to the unusual length of the coracoid bones and clavicles, which, projecting forwards and downwards from the sternum in a very slightly curved line, give the anterior third of the bird's body a cone-like form. This peculiar formation, together with its flattened sides, enables the bird more readily to glide, serpent-like, with speed and silence, through its grassy and often tangled habitat. It is curious to observe how, in spite of its considerable powers of flight, the rail rarely, if ever, depends so much upon its wings as on its legs for a means of escape from danger. Its furtive habits, its keen senses of sight and hearing, its colour (so perfectly corresponding to the hues of those plants and sedges amongst which it dwells), lend to instinct a sense of security, independent of flight, which induces the bird, on the approach of danger, to skulk and hide or run, or if by sudden surprise startled into flight, to drop again almost directly.

By a glance at the diagrams I have sent it will readily be perceived how much the three specimens resemble one another in their general outline, in their narrowness from side to side, and in the depth of their keels; also in the form and comparative length and strength of their clavicles, coracoid bones and scapulæ. This general resemblance is due to their general similarity in habits, which necessitates similar provisions of form, parts and powers.

It will be observed, however, that the sternum of G. chloropus is provided with the shallowest keel of the three, in proportion to its greater size. This is doubtless in consequence of the bird possessing comparatively limited powers of flight, being less migratory in its habits and a more general resident of Britain than any of the others; also because it uses its wings less, and resorts more to swimming and diving than the other two members of this family I have already named. For the same reason the sternum and clavicles in this species are wider from side to side than in any other rail, and the clavicles are slightly more arched, after the fashion of most water birds.

In the cases of G. chloropus and G. pusilla the body of the sternum is prolonged from its posterior margin on both sides of the keel, forming two distinct alæ or wings directed downwards, and in the fresh specimen, united to one another and to the posterior margins of the base of the keel by a membranous expansion which completes the upper and lower surfaces of the sternum unbroken, gives lightness to the entire structure, with a greater breadth of expanse for the attachment of muscles, and a greater resisting surface to the water when launched upon that element.

In the case of G. Crex there are no apparently distinct alæ, for those portions of the sternum which in both the other species are thus elongated and distinct, are in this species united and drawn together much more closely by a strong but very narrow band of fibrous tissue; thus reducing the narrowness of the body from side to side to a minimum, which in this species can be accomplished without impairing in any way its provisions for obtaining food and safety, as it does not frequent marsh and water, but the higher meadow lands, whilst it affords the bird extraordinary facilities for gliding through the thick and tangled herbage.

The sternum of G. pusilla, whilst it much resembles that of G. Crex in most particulars, differs from it in being provided with distinct alæ, diverging sufficiently to form, when united by a fibrous expansion, a greater resisting surface to the water and a greater expanse for the attachment of muscles, combined with marvellous lightness. Indeed the whole structure is one of the most perfectly elegant (if I may use the term) and efficient combinations for the very peculiar and special objects it is destined to fulfil I have yet seen in Nature.

In G. pusilla the clavicles are less curved, *i. e.*, straighter, as well as longer, in proportion to the size of the bird, than in either G. chloropus or G. Crex. The length of the clavicle in G. pusilla, from its sternal to its coracoid extremity, is within an eighth of an inch as long as the keel from its anterior superior apex to its posterior inferior apex: thus the deepest point of the bird from above downwards would be exactly in the centre of the skeleton, whilst the whole anterior half of the bird is rendered funnel or cone-shaped.

W. W. Boulton.

Beverley, July 28, 1864.

Occurrence of the Ruff and Curlew Sandpiper at Kingsbury Reservoir, Middlesex. —On the 25th of August, while walking round this Reservoir, I was much surprised at seeing three ruffs, one of which (an old male) I succeeded in shooting. This is, as far as I can gather, the second time this bird has been procured there. Nineteen years ago the keeper found two, and shot them both; they were old males in breeding plumage. On the 17th of this month (September) my brother killed a curlew sandpiper at the same place; it was in company with a flock of ringed plovers. The little stint has occurred several times this autumn. My brother and I have each shot one, and the keeper has seen several others. — *W. H. Power; St. Bartholemew's Hospital, September* 19, 1864.

Occurrence of the Little Stint near Leeds.—On September 13th I shot a male specimen of the little stint (*Tringa minuta*) near the Reservoir on Yeadon Moor. It is of very rare occurrence in this neighbourhood. —*Joseph J. Armistead; Virginia House, Leeds.*

Blacktailed Godwit and Spotted Redshank near Chichester. — On the 24th August a blacktailed godwit (*Limosa melanura*) was shot at a fresh-water pond near here, and is now in my possession: it proved to be a male, and I believe is a bird of the year. I found the length to be 12½ inches, extent of wing 26 inches, and the bill 2½ inches long. The stomach contained the remains of insects, also a few marine and fresh-water shells, and a portion of small gravels. I have another specimen which was shot at Birdham (also by fresh-water), on the 16th of August, 1859. These two are the only birds of this species that have, to my knowledge, been killed in this locality during that period of five years. I have also received a spotted redshank (*Totanus fuscus*) from Sidlesham, which was shot in Pagham Harbour on the 29th of August. This I believe to have been a male, but it was so much decomposed that I could not be certain. I have had two other specimens of this bird from the same place, one on the 28th of August, 1860, the other on the 14th of October, 1863.— *William Jeffrey; Ratham, Chichester, September* 9, 1864.

Bittern in the Isle of Wight. — At this time, when ornithologists are agreed in fearing the quickly-coming extinction of that solitary but interesting and picturesque bird the bittern (*Ardea stellaris*), all records of its occurrence should be most carefully preserved, in order that we may watch what we cannot prevent, and have in these records an indirect index of the progress of civilization, before whose strides this bird is so rapidly retreating, as the moa has even now done. While walking, on Friday, August 26th, through the village of Freshwater, I noticed, in the entrance-hall of the hostelry of the Red Lion, a case containing a fine adult male bittern. At the time I tried to learn the particulars of its capture, but failed, owing to the landlord's being from home. However, I have since written to him on the subject, and have received an obliging answer to my inquiries. It was shot, he writes, by a Mr. Charles Theobald, on the banks of the River Yar, not far from Freshwater Church, in hard, wintry weather, in the latter part of 1860. My correspondent's name is W. Sawley.—*C. E. Seaman; Northwood, Isle of Wight, September* 13, 1864.

Occurrence of the Greenshank near Norwich.—On the afternoon of the 27th instant a fine male specimen of the greenshank (*Totanus glottis*) was shot in a meadow adjoining the river below Hellesdon Mills, and about three miles north-west of Norwich. A few specimens are occasionally obtained at Blakeney; on Breydon Water, near Great Yarmouth; and other localities near the sea-coast; but the occurrence of this species so far inland as the above instance I believe is rather unusual.—*T. E. Gunn; Norwich, August* 29, 1864.

Ruff and Reeves in Norfolk. — A fine specimen of the ruff was obtained at Runhall, a village about one mile distant from Hardingham Station, on the 14th of April last, its ruff being of a rich chesnut colour, intermixed with small patches of a purplish hue. Two nice specimens of the reeve were shot at Yarmouth, one on the 20th and the second on the 27th of last August. All the above-mentioned were in fine condition and very fat.—*Id.*

Spotted Sandpiper and Ruddy Shieldrake.—My communication to the 'Zoologist' (Zool. 9046), recording the occurrence of the ruddy shieldrake (Anas rutila of Pallas) and of the spotted sandpiper (Totanus macularius of Temminck) having occasioned several letters to be sent to Mr. Newman, expressing doubts of their occurrence here, and instead of printing them he has invited me to give more information about the birds, I have great pleasure in forwarding all I know about them. Mr. Newman thinks that a specimen of the common shieldrake (Anas tadorna of Linneus) may possibly have been mistaken for it; but this species is of frequent occurrence here, and therefore one with which I am well acquainted, and certainly could not mistake it for Anas rutila. In October, 1863, I went over to Captain Healey's decoy, situated on the eastern bank of the River Trent, about six miles from Epworth; and on looking over his collection of stuffed birds, &c., I was shown a case containing a pair of ducks (*Anas rutila*). I asked who named them, and was told Mr. Waterton, of Walton Hall, while on a visit to Mr. Healey some years ago. I had never seen specimens of the same species before. I was told they had only taken four specimens in the decoy during the last fifty-two years, namely three females and one male; therefore, on the occurrence of the fourth specimen, this season, I recorded the fact in the 'Zoologist,' not doubting Mr. Waterton's authority. My esteemed friend Mr. Thomas Allis, of York, who visits Epworth every two or three months, expressed a wish to see a specimen of the ruddy shieldrake: he seemed astonished at the form of its bill, and said he could not believe it to be a genuine specimen of Anas rutila: he could not tell what the duck really was, never having seen the same species before; but on coming to Epworth again, a short time since, he said he had seen a male specimen of Anas rutila (not British) at Mr. Storrs, birdstuffer, of Doncaster, and requested me to go and see it, and I am sorry I have not yet had time to do so: he said it was very different from our specimen. In September, 1864, a sandpiper was shot by a man of this town, and taken by him to Mr. Gravil, birdstuffer, of the same place, who said it was the spotted sandpiper (*Totanus macularius*). The man took it away to show to a friend, and unfortunately went to a public-house and sold the bird to a stranger, who bought it with the intention of having it preserved. Mr. Gravil told me the next day he was quite certain of the species: he said the man promised to take the bird back to him the next day. I do not know the address of the man who bought it, although I know he lives near Doncaster; and if I can find him, and the bird is still in existence, I shall have great pleasure in sending you more particulars. — *Samuel Hudson; Epworth, July* 15, 1864.

Bridled Guillemot at Flamborough Head.—At Zool. 9251 I find a communication from Mr. Harting which refers to my note of the capture of the bridled guillemot at Flamborough Head (Zool. 9211). If Mr. Harting will kindly scan my remarks once more he will observe that he has—doubtless most inadvertently—misquoted me. Mr. Harting states that I assert this bird to be " of such rare occurrence that one has not been seen there (Flamborough) for many years," &c. What I said in reality was, that it is " quite an exceptional circumstance to meet with Uria lacrymans (then); I go on to say, " It is three years since *I* obtained a specimen of this latter species, and the bird had been shot and stuffed several years previously," &c. Mr. Harting will observe that I do not venture to assert that no specimen of the bridled guillemot has " been seen at Flamborough for many years," but that *I* have only obtained two specimens during a period of three years, and that it is quite an exceptional circumstance to meet with this bird at Flamborough. This statement I believe to be perfectly correct, and there is no doubt that on this coast Uria lacrymans is, as Mr. Harting states, " a scarce bird." I perfectly coincide with Mr. H. in his expressed doubts as to the propriety of considering U. lacrymans a distinct species from U. troile. I have dissected both species most carefully, and have read the accounts of those who know them both in their native fastnesses, habits and nidification. The only decided difference between the two birds appears to be the white line round the eye and extending from the posterior angle of the eye backwards and downwards for about an inch and a quarter. Indeed this difference has been referred by some authors merely to age, or those variations in plumage we so frequently observe in many species of birds.—*W. W. Boulton; Beverley, September* 13, 1864.

Sandwich Tern Shot at Flamborough.—I have just received in the flesh a good specimen of the Sandwich tern. It was shot off Flamborough Head by Mr. Thomas Leng, of that place, on the 25th of July last. On dissection, I found it to be a mature female. I have never previously heard of this tern being taken in our neighbourhood, although we have the common tern (*Sterna hirundo*), the arctic tern (*S. arctica*), the black tern (*S. nigra*) and the little tern (*S. minuta*); the first and last of these in considerable numbers at Spurn, on the mouth of the Humber (where they breed); also in variable numbers all along the coast. The black tern is only an occasional visitant. *Id.; July* 26, 1864.

Manx Shearwater Shot at Flamborough.—On Monday last, the 18th inst., I received in the flesh a most perfect specimen of this bird. It had been shot off Flamborough on the 16th inst., by Mr. George Leng, of that place. This is the first instance I have known of the occurrence of the Manx shearwater on this portion of the Yorkshire coast, although the Rev. F. O. Morris, in his work on British Birds, mentions that specimens are occasionally obtained on the Yorkshire coast in the autumn. The plumage of my specimen, with its upper half deep brownish black, and its lower half unsullied white, indicated maturity, but I regret to say that in consequence of the injuries sustained from shot, and the hemorrhage that had taken place about the kidneys, &c., I was unable to decide positively as to the sex. I believe it to have been a female. The length from end of bill to end of tail was fourteen inches. I made a careful dissection of the mouth and throat throughout its entire length, with a view to tracing out the source of that oily fluid which these birds have the power of discharging when captured alive. I failed in detecting any special or peculiar provision for this end, but observed that the whole glandular system of this region, from the parotid glands above to the thyroid and lowest cervical glands, were more largely developed than I had before noticed in any bird of the same size. The ducts of the secreting glands seemed to me also unusually large for so small a bird. Still I cannot think that the oily fluid vomited under pressure or excitement is secreted by any gland or glands specially designed for this object. I am rather inclined to think that it is vomited from the stomach, and is made up of the combined secretions from the liver, pancreas and stomach. Its colour and quantity, as described by Yarrell (vol. iii. p. 657), I think would lead to this supposition as to its source. Many birds, as for instance the Columbidæ and Fringillidæ, have the peculiar power of regurgitating as it were the contents of their crop, &c., in the act of feeding their young. It is not impossible, therefore, that a bird may be endowed with still increased powers of discharging the contents of its stomach, &c., as a means of defence. The act of vomiting in the human subject, and the matters rejected, often mixed up with a considerable quantity of the bilious secretion, and in certain cases of disease, even with fœcal deposit, still further sustains the possibility of such a power being possessed by a truly oceanic bird whose habits during the breeding season lead it ashore, where it has few other means of protection. The last illustration of regurgitant power I have given would, I think, also point to those sources of the oily discharge ejected by the petrels that I have already suggested. The stomach was a compound organ divided into two parts; *viz.*, one, whose powers are purely digesting; the other, whose powers are purely triturating, as we usually find it amongst fish-eating birds. The organ was empty.—*W. W. Boulton; July* 22, 1864.

The Sea-Birds at and near Filey: a Plea for their Preservation.

By Colonel H. W. Newman.

I have been sojourning at Filey for a few weeks; and on the 15th of July (St. Swithin's), a magnificent day, calm and fine, had a grand *battue* at the sea-birds near those stupendous rocks at Flamborough Head, about six or seven miles from Filey. The game was in sufficient numbers, and among the rarer birds only one specimen of the bridled guillemot was killed, but a great many of the common guillemot and puffin tribe. The turnstone and kittiwake are very common, and there is a prodigious number of the common gull: the latter are very shy. The ducks, which breed in May in these cliffs were all dispersed, as were most of the cormorants, which are numerous early in the season. After a dozen shots near the cliffs, the birds fly out in great numbers, and the cries of those poor birds which have young are really piteous.

The number of these birds has greatly diminished during the last ten or more years, in consequence of the farmers allowing the eggs of the ducks and of many other birds to be taken in April and May: it is said men pay the farmers for the privilege, and sell the eggs to be eaten. They are taken generally by only two persons; when filled each basket is let down from the cliff into a boat by one man,—a fearfully dangerous trade, to which may well be applied the description given by the immortal bard of the samphire gatherer:—

> "There is a cliff whose high and bending head
> Looks fearfully on the confined deep:
>
> * * * *
>
> How dizzy 'tis to cast one's eyes so low!
> The crows and choughs, that wing the midway air,
> Show scarce so gross as beetles. Half way down
> Hangs one that gathers samphire—dreadful trade!
> Methinks he seems no bigger than his head:
> The fishermen that walk upon the beach
> Appear like mice." * * *

My informant says that one man only lets his mate down in a basket, who fills the basket, which is let down to the water's edge, and is then returned to the top of the cliffs again.

As so many guillemots and puffins have young ones at this time of the year (July 23rd), I have no doubt they are second broods, as nearly all the first-laid eggs are taken in the spring: this is a sad pity, and I wish the landed proprietors of these beautiful cliffs lived near to prevent such a cruel robbery. The birds are seen sitting in rows and ranks in different layers of the rocks, like soldiers: from the water they appear very near, but, from their apparently small size, at half way up the cliffs, they resemble birds of the size of a sparrow. One of my sons brought down a bridled guillemot with his rifle; the bird was nearly half way up the cliff, and at the distance of about a hundred yards.

At about a mile and a half from Filey, in the bay, a tolerable day's sport may be had by a persevering sportsman, as there are many birds constantly swimming about, particularly puffins and guillemots. The readers of the 'Zoologist' who have not visited the beautiful Bay of Filey may need to be informed that it is one of the finest in the United Kingdom. When in office, Sir John Pakington intended to make it a harbour of refuge; the bay was surveyed and approved of, but a change of Ministry put an end to the plan.

On the 27th of July, accompanied by three very young gentlemen, I paid another visit to the magnificent cliffs at Flamborough Head; the wind was off the land, the sea was calm, and we had an excellent day's sport among the puffins, guillemots, kittiwakes and other birds, the frequenters of these cliffs. These birds continue breeding until late in July, probably in consequence of the great destruction of eggs before alluded to. What a pity that these poor creatures are not protected in the season of incubation! Yorkshire is a sporting county, and why do not the gentlemen unite and raise a small fund to prevent the collection of the eggs at unseasonable times of the year, that is, during April, May, and until the 24th of June? But for the great height of these cliffs the whole of the birds would be destroyed. At Filey it was stated that quantities of eggs of all the species of birds mentioned, besides ducks, cormorants and gulls, are sold in the town and neighbourhood, and the people say that they are as good for the table as hen's eggs: a good many of them are sold as specimens.

The bridled guillemot (*Uria lacrymans*) has become a very scarce bird in these cliffs, and, independent of their height, it is really a piece of foolhardiness to gather the eggs: the cliffs are in many places rent by fissures perpendicularly made for several hundred feet; and the caves and hollow passages touching the sea and near the "Cross," seem to give a special warning that some mighty avalanches or great land-slips are not far distant.

On the whole, I should rejoice to see some protection given to these poor sea-birds, and this can only be done by the landowners and farmers whose territory abuts upon the sea. The birds might still be shot from the water, but that would be a trifling matter compared to the destruction of their nests and eggs; and should a stringent rule be made to enforce the preservation of the latter, no good sportsman or right-thinking man would trespass at improper seasons of the year.

These cliffs are well worthy the attention of naturalists, particularly of those who delight in unravelling the histories of the different species of sea-birds, many of which have already been driven from their haunts.

On neither of these days were any ducks or cormorants to be seen, both of which used formerly to be numerous.

H. W. NEWMAN.

Hillside, Cheltenham,
August 3, 1864.

A Toad in a Rock forty feet below Ground.—A most interesting discovery was made in Newton Quarry, near Elgin, by the workmen of Messrs. Humphrey and Rennie, builders, Elgin, lessees of the works. The men, while engaged in blasting a rock with no seam in it that would have admitted the edge of a sixpenny piece, were astonished to see, when they had blasted the rock, a small hole, and a toad creeping out of it. The hole was not in a seam, so as to countenance the probability of the toad having got into it, but, we repeat, in solid rock, and, as a proof of this, we have the evidence of our own sight, for both stone and toad are now in this office beside us, kindly sent, at our request by Mr. Humphrey. The hole would hold a man's-fist, and is coated with clay or fuller's earth of a darkish colour, or brown, not very different from that of the creature that for unnumbered ages had slumbered in it forty feet below the level of the surrounding country, and more than twenty feet below the surface of the rock. It is a curious fact that the cleavage that exposed the toad laid bare four other holes exactly on the same level, all about the same size as that in which the toad had lain, and they were coated with dark-coloured clay, countenancing the probability that each of these holes may have at one time contained a toad, but that by some means all had perished but one.—*Elgin Courant.* [Communicated by P. H. Gosse, F.R.S.]

The Maigre in Mount's Bay.—A Sciæna (*Couch*) or Maigre (*Yarrell*) was taken in Mount's Bay this morning, which I note on account of its remarkably small size. Length over all, 1 foot 10 inches; length from eye to fork, 1 foot 6 inches; greatest girth, taken around the body, about two-thirds the length of the pectoral fin from the origin of the same fin, and giving a depth of about 5 inches, 1 foot. I omitted to weigh the fish, but should think it weighed 4 or 5 pounds. The lateral line ran on to the very end of the tail, scaled through the caudal fin-rays. The operculum terminated in a free membrane, and had towards the upper part of it a thin flat semitransparent bony point projecting backwards and downwards. The pre-operculum was serrated, or rather, I should say, studded along its lower edge with small detached teeth. The dorsals were connected by a membrane. The teeth of the upper jaw were very large and regular, curved inwards: those of the lower jaw were smaller, and not so regular. Inside the teeth of the upper jaw, and parallel with them, there was a rough, bony process, but no teeth. There were dentated bony processes in the throat at the entrance of the gullet. The tongue was tied down, except about half an inch of the tip. The jaws, both inside and outside the teeth, were of a dusky orange-colour. The colour was iridescent bronze on the back, shading off to white on the belly, and nowhere particularly brilliant. The fin-rays were—D 9 : 1.29 ; P 16 or 17 ; V 1.5 ; A 1-8 (the final fin-ray very soft, and divided near its origin ; C (including the scaled lateral line) 17. The air-bladder was 7¼ inches long, and had the fringed edges peculiar to the fish. In opening the fish these fringes appeared around the air-bladder like a packing of small white threads. The fish was taken on a hook and line, and had, at the time of its capture, the tail of a pilchard protruding from the gullet.—*Thomas Cornish; Penzance, August* 27, 1864.

The Herring on the Coast of Newfoundland.—The following extract from a letter written by my brother, on the 18th of December, 1863, and dated "Indian Island, State of Maine, New Brunswick," may be interesting to some of the readers of the 'Zoologist':—"Those who own large vessels are now preparing to sail to Newfoundland after a load of herrings. Six years ago I was there four months in the winter season. It would astonish you to see the immense quantities of herrings that visit the different bays on the south-west of the island. Thirty barrels of fish are frequently taken in one net twenty-five fathoms long. They swim so deep at this season (winter) that it is necessary to sink the nets twenty fathoms deep to reach them. With the thermometer at zero, to haul one of these heavily-laden nets home is very great labour. Ten minutes after the fish are on deck they are frozen as hard as a stone. The herrings stay in the bays between four and five weeks, and then entirely disappear. An old Newfoundland fisherman told me the herrings go due north, and remain under the ice about Hudson's Bay and that region until the spring, when, about the beginning of May, they return in myriads to the bays of Newfoundland and the Magdalene Islands, which latter place is visited by about 200 sail of schooners, of from forty to one hundred and twenty tons burthen, to load every spring. I have visited the Magdalene, but can give you only a faint idea of the immense quantities of herrings that come here to spawn. Far as the eye can extend you see them coming towards the spawning-ground. Then it is the fishermen seams them with seams 400 fathoms long, and frequently land 3000 barrels at one huge haul. For a work of this kind, when the wings of the net are on shore, 200 men are required on each seam; they go alongside the cork line in large boats, and dip the fish out with a net something like an English trout-landing net, but on a scale large enough to dip three barrels of herrings at a time. The fish are rolled into the boats over the gunwhales."—*Henry Moses; Reading, August* 2, 1864.

The Lump-Sucker off Rathlin Island.—I enclose a full-sized drawing of a little fish which was captured off this coast a few days ago, and which I am unable to name. It is one of the suckers (*Cyclopteridæ*), and I think must be either a Liparis or a Lepidogaster. The sucker is not shown in the drawing. The tail is quite transparent. May I ask you the name of the fish?—*B. F. Bewley; Rathlin Island, Ballycastle, County Antrim, September* 17, 1864.

[The drawing of this exquisitely beautiful little fish was shown to Dr. Günther, who at once pronounced it to be the young of the lump-sucker (*Cyclopterus lumpus*). —*Edward Newman.*]

Life in the Deep Ocean.—We read in the 'Proceedings of the Natural History Society of Boston, U.S.,' an observation of Mr. Marcou, in regard to deep-sea soundings, that a Norwegian naturalist had recently obtained, by means of the same instruments used by Captain M'Clintock and Dr. Wallich, between Cape North and Spitzbergen, living animals from a depth of 8400 feet (more than a mile and a half). At this depth, where the temperature was only three-tenths of a degree centigrade (nearly the freezing point), were found living polyps, mussels, tunicata, annelides, and bright-coloured crustaceans. The same naturalist had found ammonites (probably Jurassic) and leaves resembling those of the palmetto (probably Miocene) at Spitzbergen.

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This day is published, price Sixpence, No. 6 of

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London: Edward Newman, 9, Devonshire Street, Bishopsgate.

EDWIN BIRCHALL will be much obliged by Correspondents forwarding at once any Post Boxes of his which are now in their possession. Upwards of fifty boxes sent out last year have not yet been returned.

Oakfield Villa, Birkenhead, September 5, 1864.

The Cabinets of British Lepidoptera of the late W. J. RUSSELL, Esq., of Ringwood, and the late Mr. HUGH REID, of Doncaster.

MR. J. C. STEVENS begs to announce he will Sell by Auction, at his Great Rooms, 38, King Street, Covent Garden, about the Third Week in October, the COLLECTIONS of BRITISH INSECTS formed by the above-named Gentlemen. Catalogues are preparing, and will be ready one week before the Sale.

London: Edward Newman, Printer, 9, Devonshire Street, Bishopsgate, N.E.